

Old Colony Planning Council

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TECHNICAL MEMORANDUM

Date: March 28, 2016

To: Troy B.G. Clarkson, Hanover Town Manager

From: Charles Kilmer, Assistant Director/Transportation Program Manager

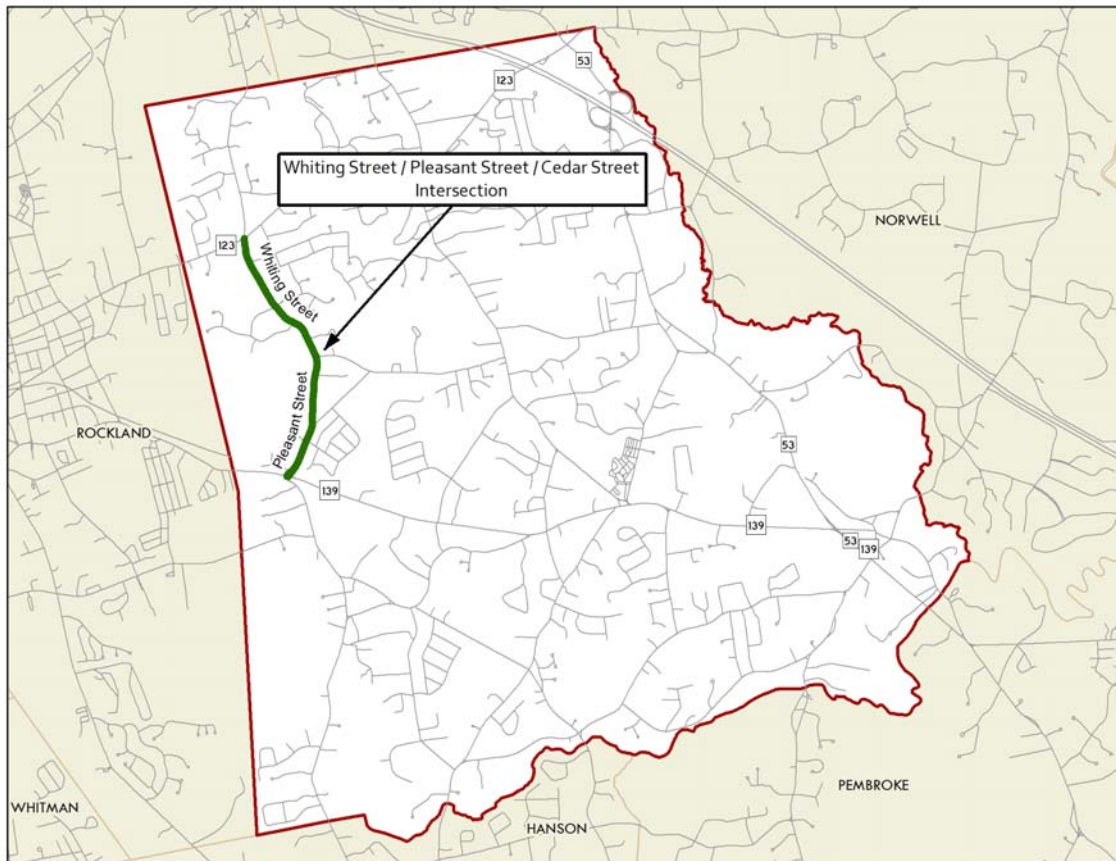
Subject: Traffic Safety Study for Pleasant Street, Whiting Street and the Whiting Street/Pleasant Street/Cedar Street intersection, Town of Hanover

At your request, OCPC has undertaken a traffic safety study to discern safety as well as operational deficiencies on Pleasant Street, Whiting Street, and the Pleasant Street/Whiting Street/Cedar Street intersection in Hanover. This traffic safety study includes traffic counts (daily counts and peak hour intersection turning movement counts), peak hour level-of-service operations analyses, crash data analyses, all-way stop and signal warrant analyses, and a discussion of potential improvements. A review of existing physical and geometric attributes of the intersection, and a review of crash records for the latest four-year history of the Whiting Street/Pleasant Street intersection is included in this study. This study includes morning and afternoon peak hour traffic operations analyses in accordance with the standards in the Transportation Research Board's Highway Capacity Manual.

Intersection Physical Inventory and Traffic Control.

Pleasant Street is a residential collector road that provides two lanes of travel in the north-south direction between Route 139 and Cedar Street. The road continues as Whiting Street, north of Pleasant Street's intersection with Cedar Street, to Route 123 and beyond to Pond Street and Route 228 adjacent to the Route 3 interchange in Rockland to the north. Pleasant Street, Whiting Street, and Cedar Street are under local jurisdiction. Whiting Street is also a collector street and both streets are under the jurisdiction of the town. Whiting Street is also a designated Scenic Road under Massachusetts General Laws Chapter 40, Section 15C.

Pleasant Street, Whiting Street, and Cedar Street form a "T" type intersection with the Hanover Middle School driveway located on Whiting Street approximately 560 feet north of Cedar Street. The Pleasant Street-Whiting Street corridor has become a north-south alternative route between Route 139 and Route 123. The alternative connections between Route 139 and Route 123 include the Union Street-Webster Street (in Rockland) corridor to the west and the Main Street corridor to the east in Hanover. Figure 1 shows the location of the study area in Hanover.

**Figure 1 Study Area Location**

The posted speed limit on Pleasant Street varies between 30 and 40 miles per hour (MPH). It is posted on Pleasant Street at 30 MPH northbound approaching Cedar Street and 40 MPH southbound headed away from Cedar Street. The posted speed limit is 35 MPH southbound in the vicinity of West Street and 35 MPH northbound just north of the Route 139 intersection. The posted speed limit on Whiting Street is 30 MPH northbound for 0.28 miles north of Pleasant and Cedar Streets, and 35 MPH for 1.49 miles to the Rockland Town Line, in accordance with a Special Speed regulation certified by the Massachusetts Department of Public Works (now Massachusetts Department of Transportation, MassDOT) and the Massachusetts Registrar of Motor Vehicles. This same permit sets the posted speed limit for Whiting Street southbound as 35 MPH from the Rockland Town Line for 1.49 miles and 30 MPH for the remainder of Whiting Street to the Pleasant Street and Cedar Street intersection. There is a school zone on Whiting Street north and south of the Hanover Middle School drive and a posting of 20 miles per hour "School Zone", ([Manual on Uniform Traffic Control Devices](#), MUTCD S43P, R2-1, and S41P) on Whiting Street northbound, as well as a "School Crossing" posting (MUTCD S1-1) at the Hanover Middle School drive. On Whiting Street southbound, there is a warning sign posted "Slow School Zone" at the intersection of Old Schoolhouse Lane.

According to MassDOT District 5, there are no posted speed permits on record issued by MassDOT for Pleasant Street. As such, the Massachusetts General Law Chapter 90, Section 17 applies to unposted roadways and specifically states that "The foundation for the actual posting of a speed limit is a thorough traffic engineering study. After a study has been completed, a Special Speed Regulation is drafted and approved by the governing authority of the roadway,



the Registry of Motor Vehicles and MassDOT. All posted regulatory speed limit signs must adhere to this approval process. If a speed limit is posted without this procedure, it is in violation of Chapter 90, Section 18, and is therefore considered illegal and unenforceable”¹

The Pleasant Street/Whiting Street/Cedar Street intersection in Hanover is unsignalized with a stop control on the Cedar Street westbound approach. All approaches to the intersection provide a single multi-use lane. Figure 2 shows the “T” type alignment of the intersection and the approach lanes as shown by aerial photography. The lane use on the approaches is unmarked.

Figure 2



The 85th percentile speeds were recorded by OCPC using automatic traffic recorders for the approach legs to the intersection. The 85th percentile speed is the speed at which 85 percent of the traffic is traveling (at or below) on the road. It is typically used by the Massachusetts Department of Transportation (MassDOT) to set the speed limit on a road. The 85th percentile speeds on Whiting Street north of Cedar Street is 40 miles per hour for both directions, which is ten miles per hour above the posted speed limit. The 85th percentile speeds on Pleasant Street south of Cedar Street is 41 miles per hour for both directions.

¹ Procedures for Speed Zoning on State and Municipal Roadways 2012, Massachusetts Department of Transportation, Highway Division, Pages 3 and 4.



Stopping Sight Distance

Stopping sight distance is the required distance necessary for a vehicle on the major street approaching an intersection to perceive and react to a vehicle on the minor street, stop controlled approach pulling out onto the major street. Conversely, it is the distance needed for the minor street vehicle to make a decision whether or not to pull out onto the major street. Sight distance is important in regards to both safety and efficient traffic operation at an intersection. Stopping sight distance is affected by curves, grades, and roadside objects such as signs, vegetation and buildings. The American Association of State Highway and Transportation Officials (AASHTO), in their publication, A Policy on Geometric Design of Highways and Streets, have established engineering standards as a guide for stopping sight distance for unsignalized intersections. Table 1 shows the required sight distance for prevailing speeds at an unsignalized intersection.

Table 1 – Required Stopping Sight Distance for Various Speeds

Major Road Speeds	Stopping Sight Distance (feet)
55	500
50	425
45	350
40	300
35	250
30	200
25	150

The available stopping sight distances at the Whiting Street/Pleasant Street/Cedar Street intersection were measured by OCPC staff in accordance with the guidelines in the AASHTO publication, A Policy on Geometric Design of Highways and Streets. The approximate sight distance from the Cedar Street stop line were found to be at least 400 feet looking in the northbound direction and 350 feet looking in the southbound direction, based on these field measurements. According to Table 1, the sight distance to the north (400 feet) is adequate for the 30 miles per hour (MPH) posted speeds on Whiting Street, and the 85th percentile speed of 40 MPH, which was recorded by OCPC staff using automatic traffic recorders. According to Table 1, the stop distance of 350 feet to the south is adequate for the 85th percentile speed occurring on Pleasant Street, which was recorded by OCPC staff using automatic traffic recorders.

Crash Experience

Motor vehicle crash reports were obtained from MassDOT for the latest available four-year period, from 2010 to 2013. Table 2 summarizes the crash data at intersections and Table 3 summarizes the data for crashes along Whiting Street and Pleasant Street not at intersections. In addition, the intersection crash rate for the Whiting Street/Pleasant Street/Cedar Street intersection was calculated, based on the methods in the ITE publication, A Manual on Traffic Engineering Studies. The crash rate for the Whiting Street/Pleasant Street/Cedar Street intersection is 0.20 crashes per million entering vehicles (MEV), which is well below the MassDOT District 5 Average of 0.58 MEV and the Statewide Average of 0.58 MEV for unsignalized intersections.

**Table 2 Study Area Intersection Crashes**

INTERSECTION	WEBSTER ST (RTE 123) AT WHITING ST	WHITING ST AT ANDERSON FARM LN AND HOMESTEAD LN	WHITING STREET AT MIDDLE SCHOOL DRIVEWAY	WHITING ST AT CEDAR ST AND PLEASANT ST	PLEASANT ST AT WEST AVE	PLEASANT ST AT HOOVER ST	HANOVER ST (RTE 139) AT PLEASANT ST AND CIRCUIT ST
Traffic Control	Signal	Stop Sign	Stop Sign	Stop Sign	Stop Sign	Stop Sign	Signal
Angle	6	1	0	1	0	2	10
Rear-end	8	1	2	1	0	1	3
Ran off Road	2	0	2	0	2	0	2
Side-Swipe (same direction)	0	0	1	0	0	0	0
Side-swipe (opposite direction)	1	0	0	0	0	0	2
Head-on	0	0	0	0	0	0	1
Pedestrian Collision	0	0	0	0	0	0	0
Bicyclist Collision	0	0	0	1	0	0	1
Not-Known	0	0	0	0	0	0	0
Injury crash	7	2	1	2	1	0	6
Property damage only	10	0	4	1	1	3	13
Fatal crashes	0	0	0	0	0	0	0
Number of crashes	17	2	5	3	2	3	19
Percent Injury crashes	41%	100%	20%	67%	50%	0%	32%

Table 3 Study Area Crashes not at Intersections

WHITING STREET AND PLEASANT STREET CRASHES NOT AT INTERSECTION	Whiting St Between Webster St and Anderson Farm Lane	71, 79, and 91 Whiting St (North of Middle School Drive)	253 - 298 - 311 Pleasant Street	52 - 60 - and 73 Pleasant Street	15 and 24 Pleasant Street
Angle	1	0	1	0	0
Rear-end	0	1	0	2	0
Ran off Road	1	5	1	0	0
Side-Swipe (same direction)	0	0	0	0	0
Side-swipe (opposite direction)	0	1	0	0	1
Head-on	1	0	0	0	0
Pedestrian Collision	0	0	0	0	0
Bicyclist Collision	0	0	0	0	0
Not-Known	1	0	1	1	1
Injury crash	2	2	0	1	0
Property damage only	2	7	3	2	2
Fatal crashes	0	0	0	0	0
Number of crashes	4	7	3	3	2
Percent Injury crashes	50%	29%	0%	33%	0%



A summary of the crash data is as follows:

- The crash data showed that the highest number of crashes in the study area occurred at two signalized intersections, Webster Street (Route 123) at Whiting Street, and Hanover Street (Route 139) at Pleasant Street. There were 17 crashes at Webster Street (Route 123) and Whiting Street, and there were 19 crashes at Hanover Street (Route 139) and Pleasant Street.
- The crash data showed that there were several clusters of crashes at various locations along Whiting Street and Pleasant Street, the largest number occurring at Whiting Street at 71, 79, and 91 Whiting St (North of the Hanover Middle School Drive).

Traffic Operations

Manual peak hour turning movement counts were conducted during the morning and afternoon peak periods for the Whiting Street/Pleasant Street/Cedar Street intersection. The results of the turning movement counts are shown in the appendix to this report. These peak traffic counts were used to determine the operational characteristics of the morning and afternoon peak hours. Level-of-service analyses (LOS) were completed for the intersection to determine the operating conditions during the morning and afternoon peak hours under current conditions. Level-of-service analysis is a qualitative and quantitative measure based on the analysis techniques published in the Highway Capacity Manual by the Transportation Research Board. Level-of-service is a general measure that summarizes the overall operation of an intersection or transportation facility. It is based upon the operational conditions of a facility including lane use, traffic control, and lane width, and takes into account such factors as operating speeds, traffic interruptions, and freedom to maneuver.

Level-of-service represents a range of operating conditions and is summarized with letter grades from “A” to “F”, with “A” being the most desirable. Level-of-service “E” represents the maximum flow rate or the capacity on a facility. The LOS definitions describe conditions based on a number of operational parameters. There are certain parameters utilized as measures of effectiveness for specific facilities. In the case for intersections average stop delay is used as a measure of operational effectiveness to which levels-of-service are assigned. Table 4 shows the average delay criteria for stop-sign intersections.

Table 4 Level-of-Service (LOS) Stop Sign Average Delay

Level-of-Service	Stop Sign Seconds of Delay
A	0 to 10
B	>10 to 15
C	>15 to 25
D	>25 to 35
E	>35 to 50
F	>50



Table 5 shows the peak hour LOS results for the Whiting Street/Pleasant Street/Cedar Street intersection.

Table 5 – Level-of-Service (LOS) Summary

	Level-of-Service	
	AM Peak	PM Peak
Cedar Street westbound left and right turns	F	B
Whiting Street southbound left turns	A	A
Overall intersection level-of-service	E	A

As shown in Table 5, the intersection of Whiting Street/Pleasant Street/Cedar Street operates under acceptable levels-of-service (LOS) except during the morning peak hour when the westbound approach experiences very long delays (LOS “F”). This is due mostly to traffic associated with the school as the school peak hour in the morning coincides with the commuter peak (the PM commuter peak hour occurs after school is dismissed in the afternoon).

Traffic Volumes, Prevailing Speeds, and Heavy Vehicles

Automatic traffic recorders were used to determine the average daily traffic (ADT) at specific locations on Whiting Street, Pleasant Street, and Cedar Street. The traffic recorders were installed for a minimum 48-hour period and recorded traffic for both directions of travel in one-hour intervals. The traffic recorders were programmed to record vehicle speeds and the number of heavy vehicles in the traffic stream, as well as the traffic volumes. They were installed on Whiting Street north Cedar Street, Pleasant Street south of Cedar Street, and on Cedar Street east of Whiting Street and Pleasant Street. Table 6 shows the average daily traffic (24-hour total for both directions of travel), as well as the prevailing 85th percentile speeds, and the percentage of heavy vehicles. The automatic traffic recorder count reports are included in the appendix to this study.

Table 6

Location	Average Daily Traffic (vehicles per day)	85th Percentile Speed (both directions combined)	Percent Heavy Vehicles
Whiting Street north of Cedar Street	9,645	40 MPH	7.6%
Pleasant Street south of Cedar Street	8,000	41 MPH	10.2%
Cedar Street east of Whiting Street and Pleasant Street	2,052	43 MPH	8.7%

The data shows that the highest volume of vehicles occurred on Whiting Street with 9,645 vehicles per day (VPD). There were 8,000 VPD on Pleasant Street and 2,052 VPD on Cedar Street. The 85th percentile speeds (the speed at which 85 percent of the traffic is at or below), was recorded at 40 miles per hour (MPH) on Whiting Street, 41 MPH on Pleasant Street, and 43 MPH on Cedar Street. The percentage of heavy vehicles in the traffic flow was 7.6 percent for Whiting Street, 10.2 percent for Pleasant Street, and 8.7 percent for Cedar Street.

MUTCD Warrants

Warrant analyses for an all-way stop control and for signalized operations at the Whiting Street/Pleasant Street/Cedar Street intersection were performed in conformance with the FHWA’s Manual on Uniform Traffic Control Devices (MUTCD). This intersection does not satisfy



warrants for an all-way stop control or for a traffic signal. The results of the analyses are included in the appendix to this report.

Improvement Options

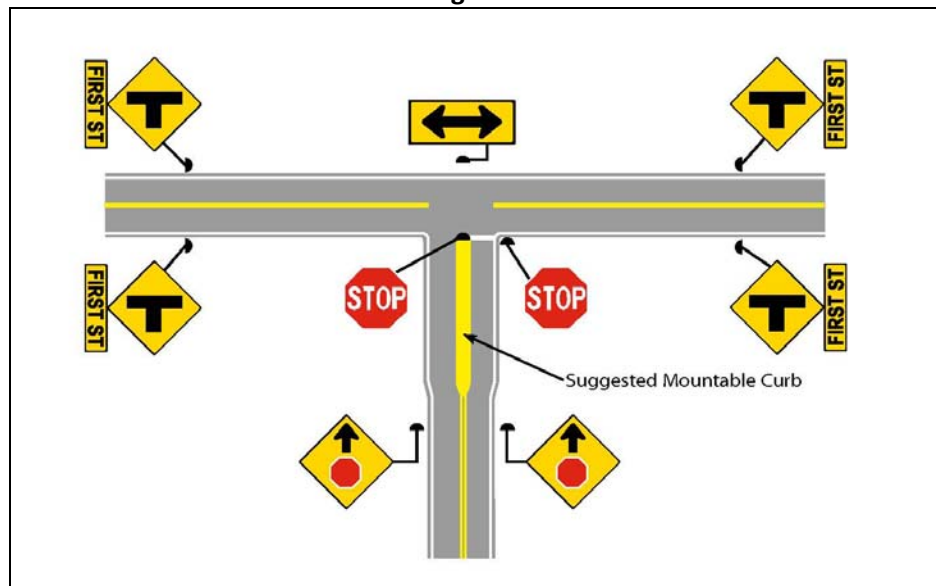
The Old Colony Planning Council has identified a number of potential recommendations for safety and improvements on Whiting Street and Pleasant Street and at the Whiting Street/Pleasant Street/Cedar Street intersection, based on the LOS analyses, crash experience, warrant analyses, and conversations with town officials and stakeholders.

- Flashing beacons (red for the stop controlled approaches and yellow for the approaches with the right of way) can be used at this intersection to emphasize the existing traffic controls. According to FHWA guidelines, intersection control beacons may be used at intersections where traffic or physical conditions do not justify conventional traffic control signals but crash rates indicate the possibility of a special need. The intersection control beacon is generally located over the center of an intersection; however, it may also be installed at other additional suitable locations in the intersection for greater visibility. The MUTCD states that typical applications of yellow warning beacons include use on approaches to intersections where additional warning is required or where special conditions exist. The flashing red beacon can emphasize the stop control on the Cedar Street approach and the flashing yellow can emphasize the need for caution, and provide better visibility, on the northbound and southbound approaches as vehicles enter the intersection.
- The placement of the truck weight limit signs on Whiting Street and Pleasant Street should be reconsidered in order that trucks are given a chance to detour or turn around. The town should consider placing a weight limit sign at the Route 139/Pleasant Street intersection so that trucks have more advanced warning. The Manual on Uniform Traffic Control Devices (MUTCD) states the following guidance regarding weight limit sign placement (page 99): “If used, the Weight Limit sign with an advisory distance ahead legend should be placed at approach road intersections or other points where prohibited vehicles can detour or turn around.”
- Safety improvements require signing for proper speeds and advanced warning for traffic. According to MassDOT District 5, there were no permits on file for posted speed limit signs on Pleasant Street. The posted speeds on Pleasant Street are unenforceable if the town does not have the proper permits under state statute. Chapter 90, Section 17 governs the speed of motor vehicles on unposted roadways. The speed limit of roads that fall into this category are often referred to as “Prima facie” speed limits. The present Prima Facie speed limits, according to Chapter 90, Section 17, are considered as follows: “It shall be Prima Facie of a rate of speed greater than is reasonable and proper if a motor vehicle is operated in excess of: 40 miles per hour in an undivided highway outside of a thickly settled or business district for a distance of 1/4 of a mile, 30 miles per hour in a thickly settled or business district for a distance of 1/8 of a mile”. The state statute defines “thickly settled” as being a district in which the buildings are within 200 feet for a quarter of a mile. (Page 3 of the Massachusetts Procedures for Speed Zoning on State and Municipal Roads, the procedures are included in the appendix to this report). According to MassDOT procedures, “The foundation for actual posting of a speed limit is a thorough traffic engineering study.”
- The town should consider low cost treatments to enhance safety at the Pleasant Street/Whiting Street/Cedar Street intersection. This includes adding a traffic island on



the Cedar Street approach, adding an additional stop sign on the island (to improve the visibility of the stop sign), adding a wider stop bar, adding warning signs with the side street (Cedar Street) name on the northbound and southbound approaches, and a warning arrow facing Cedar Street approach. According to the FHWA publication, Low-Cost Safety Enhancements for Stop-Controlled Intersections, these countermeasures can reduce crashes by and estimated 30 percent. Figure 3 shows an example of these countermeasures at a stop-controlled intersection.

Figure 3



- The town should consider adding flashing beacons on Whiting Street northbound and southbound to enhance the visibility of the school zone district north and south of the Hanover Middle School.
- The town may consider scheduling a Road Safety Audit (to be held preferably at the Hanover Town Hall) to ensure the involvement of stakeholders and to gain consensus on determining the appropriate treatments and implementation of improvements. A Road Safety Audit (RSA) is “a formal safety performance examination of an existing or future road or intersection by an independent audit team”, according to the Federal Highway Administration definition. The RSA is an interactive process (usually takes one morning) that identifies deficiencies and safety improvements. It is conducted by a multi-disciplinary team (usually consisting of local and state officials, as well as interested parties). The safety improvements typically recommended vary from low cost short term fixes to significant improvement projects.
- Radar speed display trailers placed at the side of the road, which relay the speed of vehicles back to the driver, can be an effective method to reduce speeds on the road. The trailers are inexpensive and can be easily moved to and from a number of needed locations. The town should consider obtaining a speed trailer to place on Pleasant Street (and other locations where deemed necessary) to reduce speeding on the approach to the Cedar Street intersection and the Hanover Middle School located on Whiting Street just north of Cedar Street.
- The town should consider Hanover Middle School participation in the Safe Routes to School program. According to MassDOT, the Massachusetts Safe Routes to School



- (SRTS) program helps to reduce traffic congestion near schools while increasing the health, safety, and physical activity of elementary and middle school students. The program is managed by MassDOT through its MassRides program. The program is designed to encourage walking and bicycling to middle and elementary schools establishing healthy habits, increasing student independence, and teaching safe pedestrian and bicycling skills. The program offers technical assistance, help in implementation, marketing, and program evaluation.
- The town should request that OCPC continue to monitor the study area after the implementation of safety measures to evaluate the performance of any improvements the town has implemented. This includes automatic traffic counts, heavy vehicle counts, speed studies, and compilation of crash record and safety analysis.
 - Regardless of which short and long term traffic control options are selected by the town, it is recommended that immediate and strict enforcement of the speed limits (posted and non-posted) be implemented in an effort to reduce approach speeds.



Thickly Settled Warning Sign



Radar Speed Trailer



School Zone Flashing Beacon

Should you have any questions or comments regarding this report, please contact Ray Guarino at (508) 583-1833, Ext. 212, or rguarino@ocpcrpa.org.



APPENDIX

- **Intersection AM and PM Turning Movement Counts**
- **Automatic Traffic Recorder Counts, Speed Studies, and Heavy Vehicle Classifications**
- **Level-of-Service Analyses**
- **Multi-Way Stop Sign Warrant Analysis**
- **Traffic Signal Warrant Analysis**
- **Crash Rate Analysis**
- **FHWA Low Cost Safety Enhancements for Stop – Controlled Intersections**
- **Massachusetts DOT Procedures for Speed Zoning on State and Municipal Roadways 2012**
- **Safe Routes to School Brochure**



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Community: Hanover
Weather: Clear
Board # & Staff: DB-400 (3) / RG
Traffic Control: Stop Sign

File Name : Whiting Street & Cedar Street_AM
Site Code : 122
Start Date : 12/8/2015
Page No : 1

Groups Printed- Cars - Buses - Trucks

	Whiting Street Southbound				Cedar Street Westbound				Pleasant Street Northbound				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		
07:00 AM	30	62	0	92	75	2	0	77	3	123	0	126	295
07:15 AM	56	63	0	119	111	1	2	114	3	124	0	127	360
07:30 AM	59	48	0	107	31	1	0	32	2	133	0	135	274
07:45 AM	39	8	0	47	19	2	0	21	1	134	0	135	203
Total	184	181	0	365	236	6	2	244	9	514	0	523	1132
08:00 AM	27	11	0	38	11	1	0	12	3	103	0	106	156
08:15 AM	33	21	0	54	19	0	0	19	1	79	0	80	153
08:30 AM	27	10	0	37	16	0	0	16	1	74	0	75	128
08:45 AM	45	11	0	56	5	0	0	5	1	55	0	56	117
Total	132	53	0	185	51	1	0	52	6	311	0	317	554
Grand Total	316	234	0	550	287	7	2	296	15	825	0	840	1686
Apprch %	57.5	42.5	0		97	2.4	0.7		1.8	98.2	0		
Total %	18.7	13.9	0	32.6	17	0.4	0.1	17.6	0.9	48.9	0	49.8	
Cars	299	218	0	517	278	6	0	284	13	785	0	798	1599
% Cars	94.6	93.2	0	94	96.9	85.7	0	95.9	86.7	95.2	0	95	94.8
Buses	7	13	0	20	6	1	2	9	1	10	0	11	40
% Buses	2.2	5.6	0	3.6	2.1	14.3	100	3	6.7	1.2	0	1.3	2.4
Trucks	10	3	0	13	3	0	0	3	1	30	0	31	47
% Trucks	3.2	1.3	0	2.4	1	0	0	1	6.7	3.6	0	3.7	2.8



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Factor	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		
04:00 PM	125	21	0	146	21	2	0	23	3	56	0	59	228
04:15 PM	118	11	0	129	13	2	0	15	2	50	0	52	196
04:30 PM	123	22	0	145	13	2	0	15	3	52	0	55	215
04:45 PM	108	12	0	120	12	1	0	13	2	60	0	62	195
Total	474	66	0	540	59	7	0	66	10	218	0	228	834
05:00 PM	141	20	0	161	7	3	0	10	2	69	0	71	242
05:15 PM	143	17	0	160	22	2	0	24	1	48	0	49	233
05:30 PM	115	17	0	132	27	1	0	28	2	49	0	51	211
05:45 PM	109	23	0	132	50	2	0	52	0	54	0	54	238
Total	508	77	0	585	106	8	0	114	5	220	0	225	924
Grand Total	982	143	0	1125	165	15	0	180	15	438	0	453	1758
Apprch %	87.3	12.7	0		91.7	8.3	0		3.3	96.7	0		
Total %	55.9	8.1	0	64	9.4	0.9	0	10.2	0.9	24.9	0	25.8	
Cars	963	143	0	1106	163	15	0	178	15	431	0	446	1730
% Cars	98.1	100	0	98.3	98.8	100	0	98.9	100	98.4	0	98.5	98.4
Buses	1	0	0	1	0	0	0	0	0	1	0	1	2
% Buses	0.1	0	0	0.1	0	0	0	0	0	0.2	0	0.2	0.1
Trucks	18	0	0	18	2	0	0	2	0	6	0	6	26
% Trucks	1.8	0	0	1.6	1.2	0	0	1.1	0	1.4	0	1.3	1.5



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Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	141	20	0	161	7	3	0	10	2	69	0	71	242
05:15 PM	143	17	0	160	22	2	0	24	1	48	0	49	233
05:30 PM	115	17	0	132	27	1	0	28	2	49	0	51	211
05:45 PM	109	23	0	132	50	2	0	52	0	54	0	54	238
Total Volume	508	77	0	585	106	8	0	114	5	220	0	225	924
% App. Total	86.8	13.2	0		93	7	0		2.2	97.8	0		
PHF	.888	.837	.000	.908	.530	.667	.000	.548	.625	.797	.000	.792	.955
Cars	498	77	0	575	106	8	0	114	5	217	0	222	911
% Cars	98.0	100	0	98.3	100	100	0	100	100	98.6	0	98.7	98.6
Buses	1	0	0	1	0	0	0	0	0	0	0	0	1
% Buses	0.2	0	0	0.2	0	0	0	0	0	0	0	0	0.1
Trucks	9	0	0	9	0	0	0	0	0	3	0	3	12
% Trucks	1.8	0	0	1.5	0	0	0	0	0	1.4	0	1.3	1.3

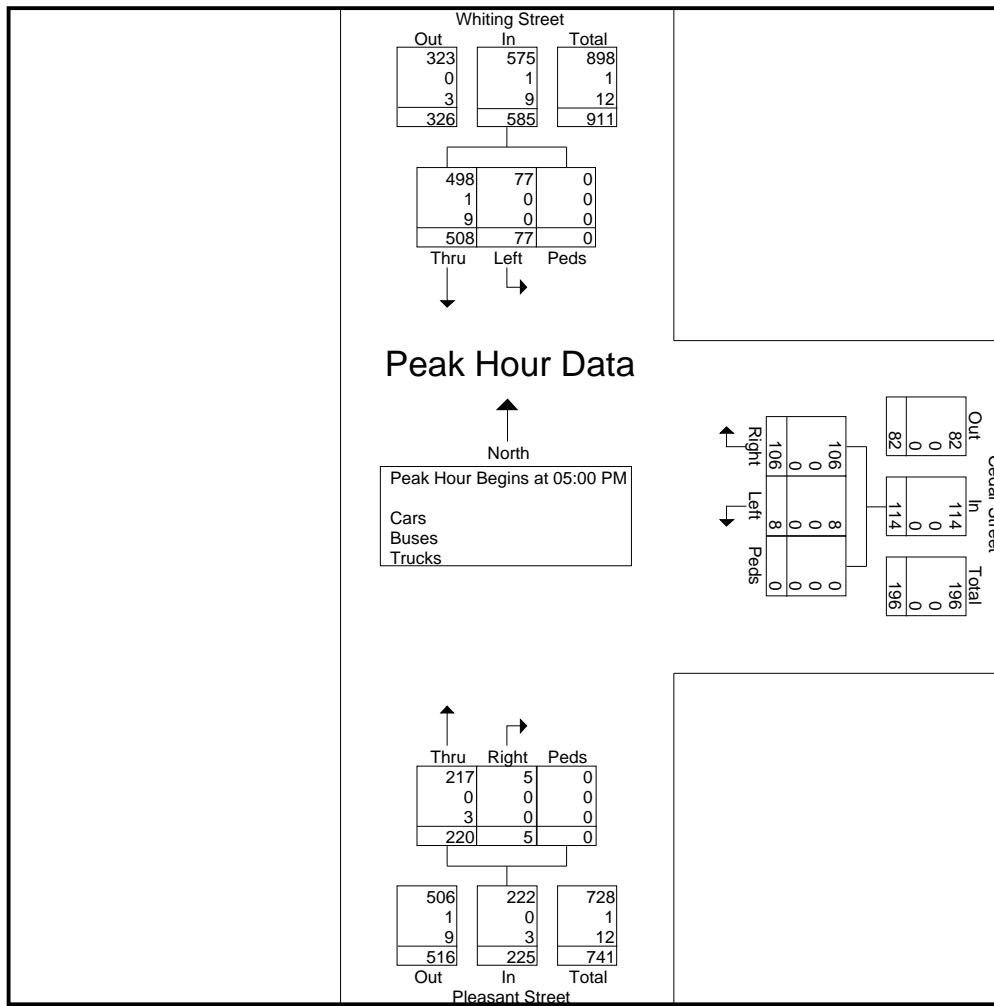


Old Colony Planning Council

70 School Street
Brockton, MA 02301
(508) 583-1833
www.ocpcrpa.org

Community: Hanover
Weather: Clear
Board # & Staff: DB-400 (3) / RG
Traffic Control: Stop Sign

File Name : Whiting Street & Cedar Street_PM
Site Code : 122
Start Date : 12/8/2015
Page No : 5





Old Colony Planning Council

70 School Street
Brockton, MA 02301
(508) 583-1833
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Community: Hanover
Weather: Clear
Board # & Staff: DB-400 (3) / RG
Traffic Control: Stop Sign

File Name : Whiting Street & Cedar Street_AM
Site Code : 122
Start Date : 12/8/2015
Page No : 4

	Whiting Street Southbound				Cedar Street Westbound				Pleasant Street Northbound				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:00 AM													
07:00 AM	30	62	0	92	75	2	0	77	3	123	0	126	295
07:15 AM	56	63	0	119	111	1	2	114	3	124	0	127	360
07:30 AM	59	48	0	107	31	1	0	32	2	133	0	135	274
07:45 AM	39	8	0	47	19	2	0	21	1	134	0	135	203
Total Volume	184	181	0	365	236	6	2	244	9	514	0	523	1132
% App. Total	50.4	49.6	0		96.7	2.5	0.8		1.7	98.3	0		
PHF	.780	.718	.000	.767	.532	.750	.250	.535	.750	.959	.000	.969	.786
Cars	177	169	0	346	228	5	0	233	8	488	0	496	1075
% Cars	96.2	93.4	0	94.8	96.6	83.3	0	95.5	88.9	94.9	0	94.8	95.0
Buses	3	10	0	13	6	1	2	9	0	10	0	10	32
% Buses	1.6	5.5	0	3.6	2.5	16.7	100	3.7	0	1.9	0	1.9	2.8
Trucks	4	2	0	6	2	0	0	2	1	16	0	17	25
% Trucks	2.2	1.1	0	1.6	0.8	0	0	0.8	11.1	3.1	0	3.3	2.2

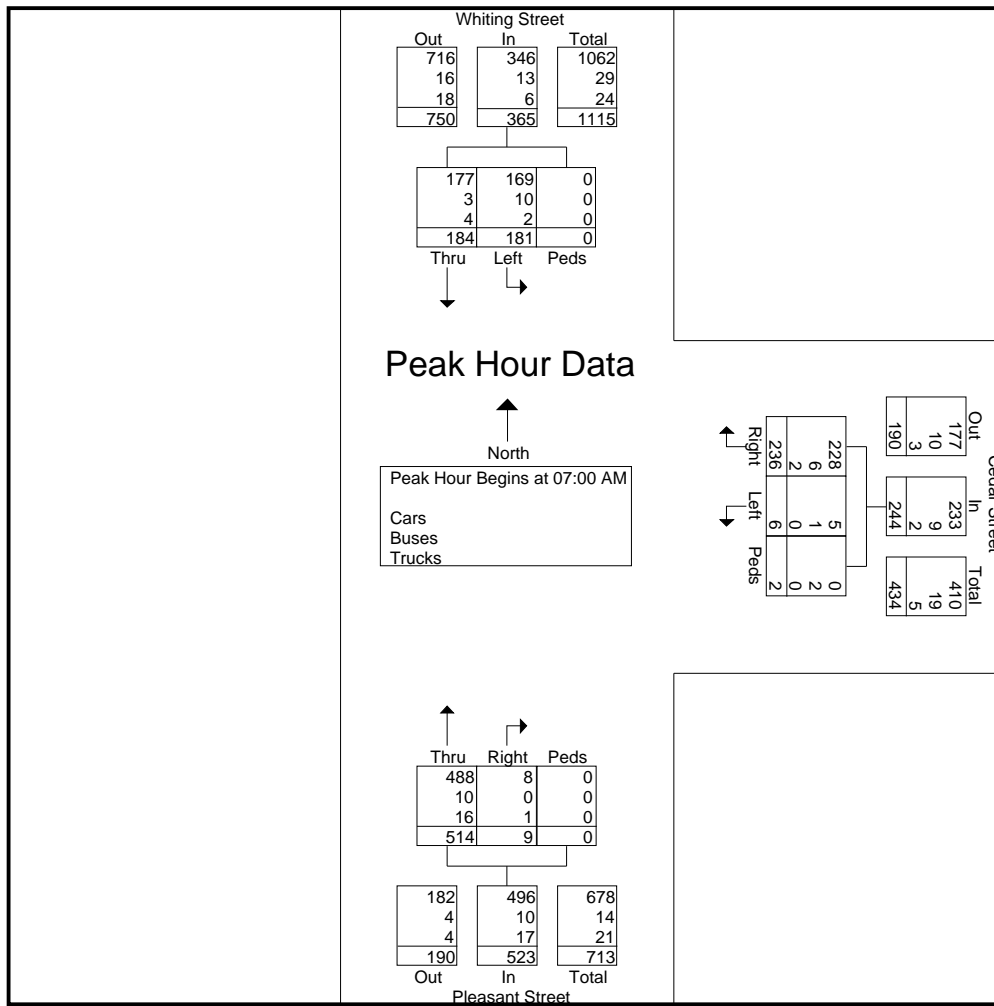


Old Colony Planning Council

70 School Street
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Community: Hanover
Weather: Clear
Board # & Staff: DB-400 (3) / RG
Traffic Control: Stop Sign

File Name : Whiting Street & Cedar Street_AM
Site Code : 122
Start Date : 12/8/2015
Page No : 5



Old Colony Planning Council
70 School Street
Brockton, MA 02301
508-583-1833
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Page 1

Community: Hanover
Com#_UR/FC: 122_U6
Recorder #: 19651
Layout: L6 Basic (2')

Station ID:
Site Code: 122
Date Start: 18-Nov-15
Date End: 19-Nov-15
Whiting St, north of Cedar St

Start Time	16-Nov-15		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
12:00 AM	*	*	*	*	5	20	12	24	*	*	*	*	*	*	8	22
01:00	*	*	*	*	7	19	1	14	*	*	*	*	*	*	4	16
02:00	*	*	*	*	9	5	9	7	*	*	*	*	*	*	9	6
03:00	*	*	*	*	11	4	13	7	*	*	*	*	*	*	12	6
04:00	*	*	*	*	87	11	85	14	*	*	*	*	*	*	86	12
05:00	*	*	*	*	275	36	286	46	*	*	*	*	*	*	280	41
06:00	*	*	*	*	379	104	374	103	*	*	*	*	*	*	376	104
07:00	*	*	*	*	727	327	731	325	*	*	*	*	*	*	729	326
08:00	*	*	*	*	413	200	398	198	*	*	*	*	*	*	406	199
09:00	*	*	*	*	280	143	281	174	*	*	*	*	*	*	280	158
10:00	*	*	*	*	221	177	207	166	*	*	*	*	*	*	214	172
11:00	*	*	*	*	200	149	196	173	*	*	*	*	*	*	198	161
12:00 PM	*	*	*	*	216	199	251	235	*	*	*	*	*	*	234	217
01:00	*	*	*	*	215	244	239	233	*	*	*	*	*	*	227	238
02:00	*	*	*	*	342	399	314	394	*	*	*	*	*	*	328	396
03:00	*	*	*	*	371	549	371	527	*	*	*	*	*	*	371	538
04:00	*	*	*	*	306	577	268	545	*	*	*	*	*	*	287	561
05:00	*	*	*	*	268	579	263	600	*	*	*	*	*	*	266	590
06:00	*	*	*	*	181	351	181	368	*	*	*	*	*	*	181	360
07:00	*	*	*	*	133	228	123	232	*	*	*	*	*	*	128	230
08:00	*	*	*	*	94	171	127	166	*	*	*	*	*	*	110	168
09:00	*	*	*	*	61	131	57	129	*	*	*	*	*	*	59	130
10:00	*	*	*	*	36	73	39	96	*	*	*	*	*	*	38	84
11:00	*	*	*	*	25	51	21	60	*	*	*	*	*	*	23	56
Total	0	0	0	0	4862	4747	4847	4836	0	0	0	0	0	0	4854	4791
Day	0		0		9609		9683		0		0		0		9645	
AM Peak	-	-	-	-	07:00	07:00	07:00	07:00	-	-	-	-	-	-	07:00	07:00
Vol.	-	-	-	-	727	327	731	325	-	-	-	-	-	-	729	326
PM Peak	-	-	-	-	15:00	17:00	15:00	17:00	-	-	-	-	-	-	15:00	17:00
Vol.	-	-	-	-	371	579	371	600	-	-	-	-	-	-	371	590

Comb. Total	0	0	9609	9683	0	0	0	9645
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Old Colony Planning Council
70 School Street
Brockton, MA 02301
508-583-1833
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Page 1

Community: Hanover
Com#_UR/FC: 122_U6
Recorder #: 19651
Layout: L6 Basic (2')

Station ID:
Site Code: 122
Date Start: 18-Nov-15
Date End: 19-Nov-15
Whiting St, north of Cedar St

Start Time	18-Nov-15 Wed	NB		SB		Combined		19-Nov Thu	NB		SB		Combined	
		A.M.	P.M.	A.M.	P.M.	A.M.	P.M.		A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
12:00		2	57	7	51	9	108		2	46	8	51	10	97
12:15		2	57	4	52	6	109		2	105	9	75	11	180
12:30		1	55	6	46	7	101		3	52	3	60	6	112
12:45		0	47	3	50	3	97		5	48	4	49	9	97
01:00		2	48	6	74	8	122		0	49	7	55	7	104
01:15		1	43	9	59	10	102		1	56	4	58	5	114
01:30		2	62	4	56	6	118		0	56	2	57	2	113
01:45		2	62	0	55	2	117		0	78	1	63	1	141
02:00		1	97	2	77	3	174		1	83	1	53	2	136
02:15		2	77	2	106	4	183		1	70	3	114	4	184
02:30		2	95	1	95	3	190		2	72	2	95	4	167
02:45		4	73	0	121	4	194		5	89	1	132	6	221
03:00		3	93	2	132	5	225		0	100	1	112	1	212
03:15		1	81	1	129	2	210		3	89	3	136	6	225
03:30		3	101	0	141	3	242		3	84	2	150	5	234
03:45		4	96	1	147	5	243		7	98	1	129	8	227
04:00		9	84	1	145	10	229		7	83	2	134	9	217
04:15		5	71	0	159	5	230		10	66	2	124	12	190
04:30		30	66	5	127	35	193		25	62	4	122	29	184
04:45		43	85	5	146	48	231		43	57	6	165	49	222
05:00		57	83	2	163	59	246		76	82	3	146	79	228
05:15		67	64	10	165	77	229		66	70	11	167	77	237
05:30		77	68	7	137	84	205		66	55	11	148	77	203
05:45		74	53	17	114	91	167		78	56	21	139	99	195
06:00		75	48	12	99	87	147		61	55	17	100	78	155
06:15		86	41	17	78	103	119		92	50	26	106	118	156
06:30		97	48	25	79	122	127		99	42	19	86	118	128
06:45		121	44	50	95	171	139		122	34	41	76	163	110
07:00		184	48	77	62	261	110		206	31	79	77	285	108
07:15		217	33	115	68	332	101		217	41	118	63	335	104
07:30		191	23	94	52	285	75		171	24	87	38	258	62
07:45		135	29	41	46	176	75		137	27	41	54	178	81
08:00		121	27	52	42	173	69		123	35	38	39	161	74
08:15		117	20	60	46	177	66		107	32	49	53	156	85
08:30		92	25	32	41	124	66		88	26	52	34	140	60
08:45		83	22	56	42	139	64		80	34	59	40	139	74
09:00		74	28	34	38	108	66		77	13	57	37	134	50
09:15		81	14	37	36	118	50		67	16	39	34	106	50
09:30		78	7	38	36	116	43		73	15	41	35	114	50
09:45		47	12	34	21	81	33		64	13	37	23	101	36
10:00		60	14	41	21	101	35		50	12	34	31	84	43
10:15		50	14	39	19	89	33		45	13	49	31	94	44
10:30		58	5	49	17	107	22		53	8	45	14	98	22
10:45		53	3	48	16	101	19		59	6	38	20	97	26
11:00		37	8	27	11	64	19		47	6	44	9	91	15
11:15		60	9	35	15	95	24		45	4	43	18	88	22
11:30		54	5	39	10	93	15		52	3	30	18	82	21
11:45		49	3	48	15	97	18		52	8	56	15	108	23
Total		2614	2248	1195	3552	3809	5800		2593	2254	1251	3585	3844	5839
Day Total		4862		4747		9609			4847		4836		9683	
% Total		27.2%	23.4%	12.4%	37.0%				26.8%	23.3%	12.9%	37.0%		
Peak	-	07:00	03:00	06:45	04:45	07:00	03:30	-	07:00	03:00	06:45	04:45	07:00	03:15
Vol.	-	727	371	336	611	1054	944	-	731	371	325	626	1056	903
P.H.F.		0.838	0.918	0.730	0.926	0.794	0.971		0.842	0.928	0.689	0.937	0.788	0.965

Old Colony Planning Council
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Page 1

Community: Hanover
Com#_UR/FC: 122_U6
Recorder #: 19651
Layout: L6 Basic (2')

Station ID:
Site Code: 122
Date Start: 18-Nov-15
Date End: 19-Nov-15
Whiting St, north of Cedar St

Start Time	16-Nov-15 Mon	17-Nov-15 Tue	18-Nov-15 Wed	19-Nov-15 Thu	20-Nov-15 Fri	21-Nov-15 Sat	22-Nov-15 Sun	Week Average
12:00 AM	*	*	25	36	*	*	*	30
01:00	*	*	26	15	*	*	*	20
02:00	*	*	14	16	*	*	*	15
03:00	*	*	15	20	*	*	*	18
04:00	*	*	98	99	*	*	*	98
05:00	*	*	311	332	*	*	*	322
06:00	*	*	483	477	*	*	*	480
07:00	*	*	1054	1056	*	*	*	1055
08:00	*	*	613	596	*	*	*	604
09:00	*	*	423	455	*	*	*	439
10:00	*	*	398	373	*	*	*	386
11:00	*	*	349	369	*	*	*	359
12:00 PM	*	*	415	486	*	*	*	450
01:00	*	*	459	472	*	*	*	466
02:00	*	*	741	708	*	*	*	724
03:00	*	*	920	898	*	*	*	909
04:00	*	*	883	813	*	*	*	848
05:00	*	*	847	863	*	*	*	855
06:00	*	*	532	549	*	*	*	540
07:00	*	*	361	355	*	*	*	358
08:00	*	*	265	293	*	*	*	279
09:00	*	*	192	186	*	*	*	189
10:00	*	*	109	135	*	*	*	122
11:00	*	*	76	81	*	*	*	78
Total	0	0	9609	9683	0	0	0	9644
Percentage	0.0%	0.0%	99.6%	100.4%	0.0%	0.0%	0.0%	
AM Peak	-	-	07:00	07:00	-	-	-	07:00
Vol.	-	-	1054	1056	-	-	-	1055
PM Peak	-	-	15:00	15:00	-	-	-	15:00
Vol.	-	-	920	898	-	-	-	909

Old Colony Planning Council
70 School Street
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Page 1

Community: Hanover
Com#_UR/FC: 122_U6
Recorder #: 19651
Layout: L6 Basic (2')

Station ID:
Site Code: 122
Date Start: 18-Nov-15
Date End: 19-Nov-15
Whiting St, north of Cedar St

NB

Start Time	1 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 80	81 85	86 90	91 95	96 999	Total
11/18/15	1	1	2	1	0	0	0	0	0	0	0	0	0	0	5
01:00	5	1	1	0	0	0	0	0	0	0	0	0	0	0	7
02:00	1	7	0	1	0	0	0	0	0	0	0	0	0	0	9
03:00	1	1	6	1	2	0	0	0	0	0	0	0	0	0	11
04:00	11	38	28	10	0	0	0	0	0	0	0	0	0	0	87
05:00	35	150	72	15	1	2	0	0	0	0	0	0	0	0	275
06:00	127	174	76	2	0	0	0	0	0	0	0	0	0	0	379
07:00	573	112	37	5	0	0	0	0	0	0	0	0	0	0	727
08:00	164	183	59	7	0	0	0	0	0	0	0	0	0	0	413
09:00	91	133	49	7	0	0	0	0	0	0	0	0	0	0	280
10:00	73	82	62	4	0	0	0	0	0	0	0	0	0	0	221
11:00	69	89	34	8	0	0	0	0	0	0	0	0	0	0	200
12 PM	79	90	37	10	0	0	0	0	0	0	0	0	0	0	216
13:00	90	78	39	8	0	0	0	0	0	0	0	0	0	0	215
14:00	217	95	29	0	1	0	0	0	0	0	0	0	0	0	342
15:00	201	135	32	3	0	0	0	0	0	0	0	0	0	0	371
16:00	143	134	25	4	0	0	0	0	0	0	0	0	0	0	306
17:00	141	109	17	1	0	0	0	0	0	0	0	0	0	0	268
18:00	75	74	30	2	0	0	0	0	0	0	0	0	0	0	181
19:00	55	59	15	4	0	0	0	0	0	0	0	0	0	0	133
20:00	31	45	15	2	1	0	0	0	0	0	0	0	0	0	94
21:00	21	24	16	0	0	0	0	0	0	0	0	0	0	0	61
22:00	17	9	7	2	1	0	0	0	0	0	0	0	0	0	36
23:00	6	11	3	4	1	0	0	0	0	0	0	0	0	0	25
Total	2227	1834	691	101	7	2	0	0	0	0	0	0	0	0	4862

Daily

15th Percentile :	11 MPH
50th Percentile :	35 MPH
85th Percentile :	40 MPH
95th Percentile :	44 MPH
Mean Speed(Average) :	30 MPH
10 MPH Pace Speed :	36-45 MPH
Number in Pace :	2525
Percent in Pace :	51.9%
Number of Vehicles > 20 MPH :	3589
Percent of Vehicles > 20 MPH :	73.8%

Old Colony Planning Council
70 School Street
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Page 2

Community: Hanover
Com#_UR/FC: 122_U6
Recorder #: 19651
Layout: L6 Basic (2')

Station ID:
Site Code: 122
Date Start: 18-Nov-15
Date End: 19-Nov-15
Whiting St, north of Cedar St

NB

Start Time	1	36	41	46	51	56	61	66	71	76	81	86	91	96	Total
	35	40	45	50	55	60	65	70	75	80	85	90	95	999	
11/19/15	4	5	2	1	0	0	0	0	0	0	0	0	0	0	12
01:00	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
02:00	3	4	2	0	0	0	0	0	0	0	0	0	0	0	9
03:00	4	4	3	1	0	1	0	0	0	0	0	0	0	0	13
04:00	6	36	34	8	1	0	0	0	0	0	0	0	0	0	85
05:00	44	130	92	17	3	0	0	0	0	0	0	0	0	0	286
06:00	142	177	49	6	0	0	0	0	0	0	0	0	0	0	374
07:00	584	106	35	6	0	0	0	0	0	0	0	0	0	0	731
08:00	146	187	59	6	0	0	0	0	0	0	0	0	0	0	398
09:00	83	141	53	4	0	0	0	0	0	0	0	0	0	0	281
10:00	82	77	38	10	0	0	0	0	0	0	0	0	0	0	207
11:00	64	72	51	7	2	0	0	0	0	0	0	0	0	0	196
12 PM	76	109	59	6	1	0	0	0	0	0	0	0	0	0	251
13:00	106	82	46	3	2	0	0	0	0	0	0	0	0	0	239
14:00	203	77	33	1	0	0	0	0	0	0	0	0	0	0	314
15:00	210	128	32	1	0	0	0	0	0	0	0	0	0	0	371
16:00	173	66	26	2	1	0	0	0	0	0	0	0	0	0	268
17:00	127	111	24	1	0	0	0	0	0	0	0	0	0	0	263
18:00	78	78	23	2	0	0	0	0	0	0	0	0	0	0	181
19:00	40	58	23	2	0	0	0	0	0	0	0	0	0	0	123
20:00	62	43	18	4	0	0	0	0	0	0	0	0	0	0	127
21:00	29	20	7	1	0	0	0	0	0	0	0	0	0	0	57
22:00	8	16	12	3	0	0	0	0	0	0	0	0	0	0	39
23:00	8	4	8	0	0	1	0	0	0	0	0	0	0	0	21
Total	2283	1731	729	92	10	2	0	0	0	0	0	0	0	0	4847

Daily

15th Percentile : 11 MPH
50th Percentile : 35 MPH
85th Percentile : 40 MPH
95th Percentile : 44 MPH

Mean Speed(Average) : 30 MPH
10 MPH Pace Speed : 36-45 MPH
Number in Pace : 2460
Percent in Pace : 50.8%
Number of Vehicles > 20 MPH : 3542
Percent of Vehicles > 20 MPH : 73.1%

Grand Total	4510	3565	1420	193	17	4	0	0	0	0	0	0	0	0	9709
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Overall

15th Percentile : 11 MPH
50th Percentile : 35 MPH
85th Percentile : 40 MPH
95th Percentile : 44 MPH

Mean Speed(Average) : 30 MPH
10 MPH Pace Speed : 36-45 MPH
Number in Pace : 4985
Percent in Pace : 51.3%
Number of Vehicles > 20 MPH : 7132
Percent of Vehicles > 20 MPH : 73.5%

Old Colony Planning Council
70 School Street
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Page 3

Community: Hanover
Com#_UR/FC: 122_U6
Recorder #: 19651
Layout: L6 Basic (2')

Station ID:
Site Code: 122
Date Start: 18-Nov-15
Date End: 19-Nov-15
Whiting St, north of Cedar St

SB

Start Time	1 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 80	81 85	86 90	91 95	96 999	Total
11/18/15	2	6	9	3	0	0	0	0	0	0	0	0	0	0	20
01:00	2	9	8	0	0	0	0	0	0	0	0	0	0	0	19
02:00	1	1	0	3	0	0	0	0	0	0	0	0	0	0	5
03:00	0	1	3	0	0	0	0	0	0	0	0	0	0	0	4
04:00	2	4	4	0	0	0	0	1	0	0	0	0	0	0	11
05:00	4	19	10	3	0	0	0	0	0	0	0	0	0	0	36
06:00	26	55	21	1	1	0	0	0	0	0	0	0	0	0	104
07:00	266	45	13	2	1	0	0	0	0	0	0	0	0	0	327
08:00	67	91	40	2	0	0	0	0	0	0	0	0	0	0	200
09:00	47	49	40	7	0	0	0	0	0	0	0	0	0	0	143
10:00	52	81	39	3	1	0	1	0	0	0	0	0	0	0	177
11:00	30	80	33	5	0	0	0	0	1	0	0	0	0	0	149
12 PM	58	83	51	5	2	0	0	0	0	0	0	0	0	0	199
13:00	55	111	69	9	0	0	0	0	0	0	0	0	0	0	244
14:00	211	129	57	2	0	0	0	0	0	0	0	0	0	0	399
15:00	266	212	67	3	0	0	1	0	0	0	0	0	0	0	549
16:00	236	282	57	1	0	0	0	0	0	0	0	0	0	1	577
17:00	275	262	41	0	1	0	0	0	0	0	0	0	0	0	579
18:00	122	177	48	4	0	0	0	0	0	0	0	0	0	0	351
19:00	46	123	52	7	0	0	0	0	0	0	0	0	0	0	228
20:00	40	85	40	5	0	1	0	0	0	0	0	0	0	0	171
21:00	27	52	50	2	0	0	0	0	0	0	0	0	0	0	131
22:00	6	30	31	4	2	0	0	0	0	0	0	0	0	0	73
23:00	1	19	27	4	0	0	0	0	0	0	0	0	0	0	51
Total	1842	2006	810	75	8	1	2	1	1	0	0	0	0	1	4747

Daily

15th Percentile :	13 MPH
50th Percentile :	36 MPH
85th Percentile :	41 MPH
95th Percentile :	44 MPH
Mean Speed(Average) :	31 MPH
10 MPH Pace Speed :	36-45 MPH
Number in Pace :	2816
Percent in Pace :	59.3%
Number of Vehicles > 20 MPH :	3694
Percent of Vehicles > 20 MPH :	77.8%

Old Colony Planning Council
70 School Street
Brockton, MA 02301
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Community: Hanover
Com#_UR/FC: 122_U6
Recorder #: 19651
Layout: L6 Basic (2')

Station ID:
Site Code: 122
Date Start: 18-Nov-15
Date End: 19-Nov-15
Whiting St, north of Cedar St

SB

Start Time	1 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 80	81 85	86 90	91 95	96 999	Total
11/19/15	4	13	6	1	0	0	0	0	0	0	0	0	0	0	24
01:00	1	4	6	2	1	0	0	0	0	0	0	0	0	0	14
02:00	1	1	5	0	0	0	0	0	0	0	0	0	0	0	7
03:00	1	2	4	0	0	0	0	0	0	0	0	0	0	0	7
04:00	0	5	7	2	0	0	0	0	0	0	0	0	0	0	14
05:00	11	21	12	2	0	0	0	0	0	0	0	0	0	0	46
06:00	32	37	32	2	0	0	0	0	0	0	0	0	0	0	103
07:00	246	66	10	2	1	0	0	0	0	0	0	0	0	0	325
08:00	47	103	41	6	1	0	0	0	0	0	0	0	0	0	198
09:00	60	72	39	3	0	0	0	0	0	0	0	0	0	0	174
10:00	51	71	40	4	0	0	0	0	0	0	0	0	0	0	166
11:00	40	86	41	5	1	0	0	0	0	0	0	0	0	0	173
12 PM	63	112	53	7	0	0	0	0	0	0	0	0	0	0	235
13:00	38	132	58	5	0	0	0	0	0	0	0	0	0	0	233
14:00	229	115	45	4	1	0	0	0	0	0	0	0	0	0	394
15:00	312	157	53	4	0	1	0	0	0	0	0	0	0	0	527
16:00	264	233	45	2	0	1	0	0	0	0	0	0	0	0	545
17:00	285	264	51	0	0	0	0	0	0	0	0	0	0	0	600
18:00	123	204	39	2	0	0	0	0	0	0	0	0	0	0	368
19:00	73	115	40	4	0	0	0	0	0	0	0	0	0	0	232
20:00	17	102	43	4	0	0	0	0	0	0	0	0	0	0	166
21:00	34	70	24	1	0	0	0	0	0	0	0	0	0	0	129
22:00	9	47	35	5	0	0	0	0	0	0	0	0	0	0	96
23:00	10	32	16	1	1	0	0	0	0	0	0	0	0	0	60
Total	1951	2064	745	68	6	2	0	0	0	0	0	0	0	0	4836

Daily

15th Percentile : 13 MPH
50th Percentile : 36 MPH
85th Percentile : 40 MPH
95th Percentile : 43 MPH

Mean Speed(Average) : 31 MPH
10 MPH Pace Speed : 36-45 MPH
Number in Pace : 2809
Percent in Pace : 58.1%
Number of Vehicles > 20 MPH : 3721
Percent of Vehicles > 20 MPH : 76.9%

Grand Total	3793	4070	1555	143	14	3	2	1	1	0	0	0	0	1	9583
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Overall

15th Percentile : 13 MPH
50th Percentile : 36 MPH
85th Percentile : 40 MPH
95th Percentile : 43 MPH

Mean Speed(Average) : 31 MPH
10 MPH Pace Speed : 36-45 MPH
Number in Pace : 5625
Percent in Pace : 58.7%
Number of Vehicles > 20 MPH : 7416
Percent of Vehicles > 20 MPH : 77.4%

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Community: Hanover
Com#_UR/FC: 122_U6
Recorder #: 19651
Layout: L6 Basic (2')

Station ID:
Site Code: 122
Date Start: 18-Nov-15
Date End: 19-Nov-15
Whiting St, north of Cedar St

NB, SB

Start Time	1 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 80	81 85	86 90	91 95	96 999	Total
11/18/15	3	7	11	4	0	0	0	0	0	0	0	0	0	0	25
01:00	7	10	9	0	0	0	0	0	0	0	0	0	0	0	26
02:00	2	8	0	4	0	0	0	0	0	0	0	0	0	0	14
03:00	1	2	9	1	2	0	0	0	0	0	0	0	0	0	15
04:00	13	42	32	10	0	0	0	1	0	0	0	0	0	0	98
05:00	39	169	82	18	1	2	0	0	0	0	0	0	0	0	311
06:00	153	229	97	3	1	0	0	0	0	0	0	0	0	0	483
07:00	839	157	50	7	1	0	0	0	0	0	0	0	0	0	1054
08:00	231	274	99	9	0	0	0	0	0	0	0	0	0	0	613
09:00	138	182	89	14	0	0	0	0	0	0	0	0	0	0	423
10:00	125	163	101	7	1	0	1	0	0	0	0	0	0	0	398
11:00	99	169	67	13	0	0	0	0	1	0	0	0	0	0	349
12 PM	137	173	88	15	2	0	0	0	0	0	0	0	0	0	415
13:00	145	189	108	17	0	0	0	0	0	0	0	0	0	0	459
14:00	428	224	86	2	1	0	0	0	0	0	0	0	0	0	741
15:00	467	347	99	6	0	0	1	0	0	0	0	0	0	0	920
16:00	379	416	82	5	0	0	0	0	0	0	0	0	0	1	883
17:00	416	371	58	1	1	0	0	0	0	0	0	0	0	0	847
18:00	197	251	78	6	0	0	0	0	0	0	0	0	0	0	532
19:00	101	182	67	11	0	0	0	0	0	0	0	0	0	0	361
20:00	71	130	55	7	1	1	0	0	0	0	0	0	0	0	265
21:00	48	76	66	2	0	0	0	0	0	0	0	0	0	0	192
22:00	23	39	38	6	3	0	0	0	0	0	0	0	0	0	109
23:00	7	30	30	8	1	0	0	0	0	0	0	0	0	0	76
Total	4069	3840	1501	176	15	3	2	1	1	0	0	0	0	1	9609

Daily

15th Percentile :	12 MPH
50th Percentile :	35 MPH
85th Percentile :	40 MPH
95th Percentile :	44 MPH
Mean Speed(Average) :	31 MPH
10 MPH Pace Speed :	36-45 MPH
Number in Pace :	5341
Percent in Pace :	55.6%
Number of Vehicles > 20 MPH :	7284
Percent of Vehicles > 20 MPH :	75.8%

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Community: Hanover
Com#_UR/FC: 122_U6
Recorder #: 19651
Layout: L6 Basic (2')

Station ID:
Site Code: 122
Date Start: 18-Nov-15
Date End: 19-Nov-15
Whiting St, north of Cedar St

NB, SB

Start Time	1	36	41	46	51	56	61	66	71	76	81	86	91	96	Total
	35	40	45	50	55	60	65	70	75	80	85	90	95	999	
11/19/15	8	18	8	2	0	0	0	0	0	0	0	0	0	0	36
01:00	2	4	6	2	1	0	0	0	0	0	0	0	0	0	15
02:00	4	5	7	0	0	0	0	0	0	0	0	0	0	0	16
03:00	5	6	7	1	0	1	0	0	0	0	0	0	0	0	20
04:00	6	41	41	10	1	0	0	0	0	0	0	0	0	0	99
05:00	55	151	104	19	3	0	0	0	0	0	0	0	0	0	332
06:00	174	214	81	8	0	0	0	0	0	0	0	0	0	0	477
07:00	830	172	45	8	1	0	0	0	0	0	0	0	0	0	1056
08:00	193	290	100	12	1	0	0	0	0	0	0	0	0	0	596
09:00	143	213	92	7	0	0	0	0	0	0	0	0	0	0	455
10:00	133	148	78	14	0	0	0	0	0	0	0	0	0	0	373
11:00	104	158	92	12	3	0	0	0	0	0	0	0	0	0	369
12 PM	139	221	112	13	1	0	0	0	0	0	0	0	0	0	486
13:00	144	214	104	8	2	0	0	0	0	0	0	0	0	0	472
14:00	432	192	78	5	1	0	0	0	0	0	0	0	0	0	708
15:00	522	285	85	5	0	1	0	0	0	0	0	0	0	0	898
16:00	437	299	71	4	1	1	0	0	0	0	0	0	0	0	813
17:00	412	375	75	1	0	0	0	0	0	0	0	0	0	0	863
18:00	201	282	62	4	0	0	0	0	0	0	0	0	0	0	549
19:00	113	173	63	6	0	0	0	0	0	0	0	0	0	0	355
20:00	79	145	61	8	0	0	0	0	0	0	0	0	0	0	293
21:00	63	90	31	2	0	0	0	0	0	0	0	0	0	0	186
22:00	17	63	47	8	0	0	0	0	0	0	0	0	0	0	135
23:00	18	36	24	1	1	1	0	0	0	0	0	0	0	0	81
Total	4234	3795	1474	160	16	4	0	0	0	0	0	0	0	0	9683

Daily

15th Percentile : 12 MPH
50th Percentile : 35 MPH
85th Percentile : 40 MPH
95th Percentile : 43 MPH

Mean Speed(Average) : 30 MPH
10 MPH Pace Speed : 36-45 MPH
Number in Pace : 5269
Percent in Pace : 54.4%
Number of Vehicles > 20 MPH : 7264
Percent of Vehicles > 20 MPH : 75.0%

Grand Total	8303	7635	2975	336	31	7	2	1	1	0	0	0	0	1	19292
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Overall

15th Percentile : 12 MPH
50th Percentile : 35 MPH
85th Percentile : 40 MPH
95th Percentile : 44 MPH

Mean Speed(Average) : 30 MPH
10 MPH Pace Speed : 36-45 MPH
Number in Pace : 10610
Percent in Pace : 55.0%
Number of Vehicles > 20 MPH : 14547
Percent of Vehicles > 20 MPH : 75.4%

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Page 1

Community: Hanover
Com#_UR/FC: 122_U6
Recorder #: 19651
Layout: L6 Basic (2')

Station ID:
Site Code: 122
Date Start: 18-Nov-15
Date End: 19-Nov-15
Whiting St, north of Cedar St

NB

Start Time	Bikes	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total	Truck Total
11/18/15	0	2	3	0	0	0	0	0	0	0	0	0	0	5	0
01:00	0	7	0	0	0	0	0	0	0	0	0	0	0	7	0
02:00	0	6	2	0	0	0	0	0	1	0	0	0	0	9	1
03:00	0	8	3	0	0	0	0	0	0	0	0	0	0	11	0
04:00	0	49	26	0	7	0	2	0	3	0	0	0	0	87	12
05:00	0	151	85	4	23	1	2	1	8	0	0	0	0	275	39
06:00	1	237	105	3	12	3	7	1	10	0	0	0	0	379	36
07:00	13	504	162	17	18	7	2	3	0	0	0	0	0	726	47
08:00	2	278	110	3	9	5	3	0	3	0	0	0	0	413	23
09:00	1	187	68	2	8	5	5	2	2	0	0	0	0	280	24
10:00	1	146	45	5	10	5	5	3	1	0	0	0	0	221	29
11:00	0	130	46	0	8	4	6	2	4	0	0	0	0	200	24
12 PM	0	138	48	3	13	3	5	2	4	0	0	0	0	216	30
13:00	1	131	55	11	6	2	6	2	1	0	0	0	0	215	28
14:00	3	216	89	13	15	1	1	1	3	0	0	0	0	342	34
15:00	3	238	108	6	8	4	2	1	0	0	0	0	0	370	21
16:00	7	201	84	0	11	1	0	1	0	0	0	0	0	305	13
17:00	6	190	64	0	5	0	0	2	1	0	0	0	0	268	8
18:00	1	140	36	0	3	1	0	0	0	0	0	0	0	181	4
19:00	0	90	40	0	3	0	0	0	0	0	0	0	0	133	3
20:00	0	65	25	0	3	0	0	0	1	0	0	0	0	94	4
21:00	0	44	15	0	1	0	0	0	1	0	0	0	0	61	2
22:00	0	27	9	0	0	0	0	0	0	0	0	0	0	36	0
23:00	0	23	2	0	0	0	0	0	0	0	0	0	0	25	0
Total	39	3208	1230	67	163	42	46	21	43	0	0	0	0	4859	382
Percent	0.8%	66.0%	25.3%	1.4%	3.4%	0.9%	0.9%	0.4%	0.9%	0.0%	0.0%	0.0%	0.0%		7.9%
AM Peak	07:00	07:00	07:00	07:00	05:00	07:00	06:00	07:00	06:00					07:00	07:00
Vol.	13	504	162	17	23	7	7	3	10					726	47
PM Peak	16:00	15:00	15:00	14:00	14:00	15:00	13:00	12:00	12:00					15:00	14:00
Vol.	7	238	108	13	15	4	6	2	4					370	34

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Page 2

Community: Hanover
Com#_UR/FC: 122_U6
Recorder #: 19651
Layout: L6 Basic (2')

Station ID:
Site Code: 122
Date Start: 18-Nov-15
Date End: 19-Nov-15
Whiting St, north of Cedar St

NB

Start Time	Bikes	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total	Truck Total
11/19/15	0	9	3	0	0	0	0	0	0	0	0	0	0	12	0
01:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0
02:00	0	6	1	0	1	0	0	0	1	0	0	0	0	9	2
03:00	0	10	2	0	0	1	0	0	0	0	0	0	0	13	1
04:00	0	40	34	0	6	0	2	0	3	0	0	0	0	85	11
05:00	0	153	88	5	28	0	3	1	8	0	0	0	0	286	45
06:00	0	238	97	3	16	4	5	1	10	0	0	0	0	374	39
07:00	9	532	144	16	17	5	4	0	2	0	0	0	0	729	44
08:00	3	287	92	1	9	1	4	0	1	0	0	0	0	398	16
09:00	0	176	78	2	12	5	5	0	2	0	0	0	0	280	26
10:00	3	135	48	1	12	3	1	1	2	0	0	0	0	206	20
11:00	2	122	52	2	8	2	6	1	1	0	0	0	0	196	20
12 PM	1	161	66	2	13	3	4	1	0	0	0	0	0	251	23
13:00	2	142	67	9	8	4	3	2	1	1	0	0	0	239	28
14:00	2	201	74	18	7	6	3	2	0	0	0	0	0	313	36
15:00	2	257	93	8	9	1	0	0	0	0	0	0	0	370	18
16:00	5	190	60	3	7	3	0	0	0	0	0	0	0	268	13
17:00	1	190	64	0	5	0	0	1	1	0	0	0	0	262	7
18:00	0	133	44	1	3	0	0	0	0	0	0	0	0	181	4
19:00	0	87	33	0	3	0	0	0	0	0	0	0	0	123	3
20:00	0	99	24	0	4	0	0	0	0	0	0	0	0	127	4
21:00	1	41	13	0	1	0	0	0	1	0	0	0	0	57	2
22:00	0	31	6	0	2	0	0	0	0	0	0	0	0	39	2
23:00	0	13	8	0	0	0	0	0	0	0	0	0	0	21	0
Total	31	3254	1191	71	171	38	40	10	33	1	0	0	0	4840	364
Percent	0.6%	67.2%	24.6%	1.5%	3.5%	0.8%	0.8%	0.2%	0.7%	0.0%	0.0%	0.0%	0.0%		7.5%
AM Peak	07:00	07:00	07:00	07:00	05:00	07:00	11:00	05:00	06:00					07:00	05:00
Vol.	9	532	144	16	28	5	6	1	10					729	45
PM Peak	16:00	15:00	15:00	14:00	12:00	14:00	12:00	13:00	13:00	13:00				15:00	14:00
Vol.	5	257	93	18	13	6	4	2	1	1				370	36
Grand Total	70	6462	2421	138	334	80	86	31	76	1	0	0	0	9699	746
Percent	0.7%	66.6%	25.0%	1.4%	3.4%	0.8%	0.9%	0.3%	0.8%	0.0%	0.0%	0.0%	0.0%		7.7%

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Community: Hanover
Com#_UR/FC: 122_U6
Recorder #: 19651
Layout: L6 Basic (2')

Station ID:
Site Code: 122
Date Start: 18-Nov-15
Date End: 19-Nov-15
Whiting St, north of Cedar St

SB

Start Time	Bikes	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total	Truck Total
11/18/15	0	13	6	0	1	0	0	0	0	0	0	0	0	20	1
01:00	0	15	4	0	0	0	0	0	0	0	0	0	0	19	0
02:00	0	2	1	0	2	0	0	0	0	0	0	0	0	5	2
03:00	0	1	1	0	1	1	0	0	0	0	0	0	0	4	2
04:00	0	9	2	0	0	0	0	0	0	0	0	0	0	11	0
05:00	0	24	11	0	1	0	0	0	0	0	0	0	0	36	1
06:00	1	64	28	0	4	6	0	0	1	0	0	0	0	104	11
07:00	6	193	98	11	14	3	0	0	2	0	0	0	0	327	30
08:00	4	118	46	8	12	4	2	0	6	0	0	0	0	200	32
09:00	0	86	32	4	11	7	1	2	0	0	0	0	0	143	25
10:00	2	94	58	1	8	9	1	2	2	0	0	0	0	177	23
11:00	1	82	43	4	9	8	0	1	1	0	0	0	0	149	23
12 PM	0	122	58	2	7	6	2	0	2	0	0	0	0	199	19
13:00	3	149	60	4	9	11	0	4	4	0	0	0	0	244	32
14:00	2	235	116	17	13	8	0	3	3	0	0	0	0	397	44
15:00	9	331	166	5	23	9	1	1	4	0	0	0	0	549	43
16:00	11	389	147	1	16	9	0	3	0	0	0	0	0	576	29
17:00	5	401	144	3	17	3	1	4	0	0	0	0	0	578	28
18:00	3	266	74	2	3	1	0	0	0	0	0	0	0	349	6
19:00	0	172	48	1	7	0	0	0	0	0	0	0	0	228	8
20:00	0	136	34	0	1	0	0	0	0	0	0	0	0	171	1
21:00	1	103	25	0	0	1	0	0	1	0	0	0	0	131	2
22:00	0	52	20	0	1	0	0	0	0	0	0	0	0	73	1
23:00	0	41	9	0	1	0	0	0	0	0	0	0	0	51	1
Total	48	3098	1231	63	161	86	8	20	26	0	0	0	0	4741	364
Percent	1.0%	65.3%	26.0%	1.3%	3.4%	1.8%	0.2%	0.4%	0.5%	0.0%	0.0%	0.0%	0.0%		7.7%
AM Peak	07:00	07:00	07:00	07:00	07:00	10:00	08:00	09:00	08:00					07:00	08:00
Vol.	6	193	98	11	14	9	2	2	6					327	32
PM Peak	16:00	17:00	15:00	14:00	15:00	13:00	12:00	13:00	13:00					17:00	14:00
Vol.	11	401	166	17	23	11	2	4	4					578	44

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Community: Hanover
Com#_UR/FC: 122_U6
Recorder #: 19651
Layout: L6 Basic (2')

Station ID:
Site Code: 122
Date Start: 18-Nov-15
Date End: 19-Nov-15
Whiting St, north of Cedar St

SB

Start Time	Bikes	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total	Truck Total
11/19/15	0	18	6	0	0	0	0	0	0	0	0	0	0	24	0
01:00	0	11	2	0	1	0	0	0	0	0	0	0	0	14	1
02:00	0	5	1	0	1	0	0	0	0	0	0	0	0	7	1
03:00	0	3	3	0	1	0	0	0	0	0	0	0	0	7	1
04:00	0	10	4	0	0	0	0	0	0	0	0	0	0	14	0
05:00	0	32	13	1	0	0	0	0	0	0	0	0	0	46	1
06:00	1	59	29	1	7	6	0	0	0	0	0	0	0	103	14
07:00	10	199	88	9	11	5	0	0	2	0	0	0	0	324	27
08:00	3	124	47	9	7	6	0	0	2	0	0	0	0	198	24
09:00	0	93	54	2	13	8	0	1	2	0	0	0	0	173	26
10:00	1	91	50	2	9	8	1	1	3	0	0	0	0	166	24
11:00	5	97	48	1	15	3	0	2	2	0	0	0	0	173	23
12 PM	1	158	57	3	4	10	0	2	0	0	0	0	0	235	19
13:00	2	141	63	4	9	9	1	2	2	0	0	0	0	233	27
14:00	2	249	110	17	10	4	0	0	1	0	0	0	0	393	32
15:00	5	329	149	5	18	9	0	4	5	0	0	0	0	524	41
16:00	7	359	146	6	18	6	0	3	0	0	0	0	0	545	33
17:00	3	442	129	3	19	1	0	1	2	0	0	0	0	600	26
18:00	2	283	72	2	6	1	0	1	0	0	0	0	0	367	10
19:00	1	179	43	0	7	0	0	1	1	0	0	0	0	232	9
20:00	0	121	43	0	1	1	0	0	0	0	0	0	0	166	2
21:00	0	101	26	0	2	0	0	0	0	0	0	0	0	129	2
22:00	0	74	21	0	1	0	0	0	0	0	0	0	0	96	1
23:00	0	47	10	1	2	0	0	0	0	0	0	0	0	60	3
Total	43	3225	1214	66	162	77	2	18	22	0	0	0	0	4829	347
Percent	0.9%	66.8%	25.1%	1.4%	3.4%	1.6%	0.0%	0.4%	0.5%	0.0%	0.0%	0.0%	0.0%		7.2%
AM Peak	07:00	07:00	07:00	07:00	11:00	09:00	10:00	11:00	10:00					07:00	07:00
Vol.	10	199	88	9	15	8	1	2	3					324	27
PM Peak	16:00	17:00	15:00	14:00	17:00	12:00	13:00	15:00	15:00					17:00	15:00
Vol.	7	442	149	17	19	10	1	4	5					600	41
Grand Total	91	6323	2445	129	323	163	10	38	48	0	0	0	0	9570	711
Percent	1.0%	66.1%	25.5%	1.3%	3.4%	1.7%	0.1%	0.4%	0.5%	0.0%	0.0%	0.0%	0.0%		7.4%

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Community: Hanover
Com#_UR/FC: 122_U6
Recorder #: 19651
Layout: L6 Basic (2')

Station ID:
Site Code: 122
Date Start: 18-Nov-15
Date End: 19-Nov-15
Whiting St, north of Cedar St

NB, SB

Start Time	Bikes	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total	Truck Total
11/18/15	0	15	9	0	1	0	0	0	0	0	0	0	0	25	1
01:00	0	22	4	0	0	0	0	0	0	0	0	0	0	26	0
02:00	0	8	3	0	2	0	0	0	1	0	0	0	0	14	3
03:00	0	9	4	0	1	1	0	0	0	0	0	0	0	15	2
04:00	0	58	28	0	7	0	2	0	3	0	0	0	0	98	12
05:00	0	175	96	4	24	1	2	1	8	0	0	0	0	311	40
06:00	2	301	133	3	16	9	7	1	11	0	0	0	0	483	47
07:00	19	697	260	28	32	10	2	3	2	0	0	0	0	1053	77
08:00	6	396	156	11	21	9	5	0	9	0	0	0	0	613	55
09:00	1	273	100	6	19	12	6	4	2	0	0	0	0	423	49
10:00	3	240	103	6	18	14	6	5	3	0	0	0	0	398	52
11:00	1	212	89	4	17	12	6	3	5	0	0	0	0	349	47
12 PM	0	260	106	5	20	9	7	2	6	0	0	0	0	415	49
13:00	4	280	115	15	15	13	6	6	5	0	0	0	0	459	60
14:00	5	451	205	30	28	9	1	4	6	0	0	0	0	739	78
15:00	12	569	274	11	31	13	3	2	4	0	0	0	0	919	64
16:00	18	590	231	1	27	10	0	4	0	0	0	0	0	881	42
17:00	11	591	208	3	22	3	1	6	1	0	0	0	0	846	36
18:00	4	406	110	2	6	2	0	0	0	0	0	0	0	530	10
19:00	0	262	88	1	10	0	0	0	0	0	0	0	0	361	11
20:00	0	201	59	0	4	0	0	0	1	0	0	0	0	265	5
21:00	1	147	40	0	1	1	0	0	2	0	0	0	0	192	4
22:00	0	79	29	0	1	0	0	0	0	0	0	0	0	109	1
23:00	0	64	11	0	1	0	0	0	0	0	0	0	0	76	1
Total	87	6306	2461	130	324	128	54	41	69	0	0	0	0	9600	746
Percent	0.9%	65.7%	25.6%	1.4%	3.4%	1.3%	0.6%	0.4%	0.7%	0.0%	0.0%	0.0%	0.0%		7.8%
AM Peak	07:00	07:00	07:00	07:00	07:00	10:00	06:00	10:00	06:00					07:00	07:00
Vol.	19	697	260	28	32	14	7	5	11					1053	77
PM Peak	16:00	17:00	15:00	14:00	15:00	13:00	12:00	13:00	12:00					15:00	14:00
Vol.	18	591	274	30	31	13	7	6	6					919	78

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Community: Hanover
Com#_UR/FC: 122_U6
Recorder #: 19651
Layout: L6 Basic (2')

Station ID:
Site Code: 122
Date Start: 18-Nov-15
Date End: 19-Nov-15
Whiting St, north of Cedar St

NB, SB

Start Time	Bikes	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total	Truck Total
11/19/15	0	27	9	0	0	0	0	0	0	0	0	0	0	36	0
01:00	0	12	2	0	1	0	0	0	0	0	0	0	0	15	1
02:00	0	11	2	0	2	0	0	0	1	0	0	0	0	16	3
03:00	0	13	5	0	1	1	0	0	0	0	0	0	0	20	2
04:00	0	50	38	0	6	0	2	0	3	0	0	0	0	99	11
05:00	0	185	101	6	28	0	3	1	8	0	0	0	0	332	46
06:00	1	297	126	4	23	10	5	1	10	0	0	0	0	477	53
07:00	19	731	232	25	28	10	4	0	4	0	0	0	0	1053	71
08:00	6	411	139	10	16	7	4	0	3	0	0	0	0	596	40
09:00	0	269	132	4	25	13	5	1	4	0	0	0	0	453	52
10:00	4	226	98	3	21	11	2	2	5	0	0	0	0	372	44
11:00	7	219	100	3	23	5	6	3	3	0	0	0	0	369	43
12 PM	2	319	123	5	17	13	4	3	0	0	0	0	0	486	42
13:00	4	283	130	13	17	13	4	4	3	1	0	0	0	472	55
14:00	4	450	184	35	17	10	3	2	1	0	0	0	0	706	68
15:00	7	586	242	13	27	10	0	4	5	0	0	0	0	894	59
16:00	12	549	206	9	25	9	0	3	0	0	0	0	0	813	46
17:00	4	632	193	3	24	1	0	2	3	0	0	0	0	862	33
18:00	2	416	116	3	9	1	0	1	0	0	0	0	0	548	14
19:00	1	266	76	0	10	0	0	1	1	0	0	0	0	355	12
20:00	0	220	67	0	5	1	0	0	0	0	0	0	0	293	6
21:00	1	142	39	0	3	0	0	0	1	0	0	0	0	186	4
22:00	0	105	27	0	3	0	0	0	0	0	0	0	0	135	3
23:00	0	60	18	1	2	0	0	0	0	0	0	0	0	81	3
Total	74	6479	2405	137	333	115	42	28	55	1	0	0	0	9669	711
Percent	0.8%	67.0%	24.9%	1.4%	3.4%	1.2%	0.4%	0.3%	0.6%	0.0%	0.0%	0.0%	0.0%		7.4%
AM Peak	07:00	07:00	07:00	07:00	05:00	09:00	11:00	11:00	06:00					07:00	07:00
Vol.	19	731	232	25	28	13	6	3	10					1053	71
PM Peak	16:00	17:00	15:00	14:00	15:00	12:00	12:00	13:00	15:00	13:00				15:00	14:00
Vol.	12	632	242	35	27	13	4	4	5	1				894	68
Grand Total	161	12785	4866	267	657	243	96	69	124	1	0	0	0	19269	1457
Percent	0.8%	66.4%	25.3%	1.4%	3.4%	1.3%	0.5%	0.4%	0.6%	0.0%	0.0%	0.0%	0.0%		7.6%

Old Colony Planning Council
70 School Street
Brockton, MA 02301
508-583-1833
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Community: Hanover
Com#_UR/FC: 122_U6
Recorder #: 13209
Layout: L6 Basic (2')

Station ID:
Site Code: 122
Date Start: 18-Nov-15
Date End: 19-Nov-15
Pleasant St, south of Cedar St

Start Time	16-Nov-15		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
12:00 AM	*	*	*	*	3	19	12	23	*	*	*	*	*	*	8	21
01:00	*	*	*	*	5	19	2	13	*	*	*	*	*	*	4	16
02:00	*	*	*	*	8	5	8	7	*	*	*	*	*	*	8	6
03:00	*	*	*	*	12	4	10	7	*	*	*	*	*	*	11	6
04:00	*	*	*	*	83	11	85	14	*	*	*	*	*	*	84	12
05:00	*	*	*	*	263	36	266	46	*	*	*	*	*	*	264	41
06:00	*	*	*	*	340	87	359	83	*	*	*	*	*	*	350	85
07:00	*	*	*	*	534	195	532	181	*	*	*	*	*	*	533	188
08:00	*	*	*	*	368	158	350	152	*	*	*	*	*	*	359	155
09:00	*	*	*	*	249	126	251	151	*	*	*	*	*	*	250	138
10:00	*	*	*	*	201	154	178	152	*	*	*	*	*	*	190	153
11:00	*	*	*	*	183	122	165	142	*	*	*	*	*	*	174	132
12:00 PM	*	*	*	*	177	182	158	173	*	*	*	*	*	*	168	178
01:00	*	*	*	*	183	223	186	200	*	*	*	*	*	*	184	212
02:00	*	*	*	*	221	304	237	306	*	*	*	*	*	*	229	305
03:00	*	*	*	*	261	482	286	446	*	*	*	*	*	*	274	464
04:00	*	*	*	*	246	483	231	478	*	*	*	*	*	*	238	480
05:00	*	*	*	*	215	524	212	527	*	*	*	*	*	*	214	526
06:00	*	*	*	*	152	313	150	321	*	*	*	*	*	*	151	317
07:00	*	*	*	*	92	210	100	209	*	*	*	*	*	*	96	210
08:00	*	*	*	*	62	152	72	151	*	*	*	*	*	*	67	152
09:00	*	*	*	*	44	121	46	122	*	*	*	*	*	*	45	122
10:00	*	*	*	*	30	63	38	92	*	*	*	*	*	*	34	78
11:00	*	*	*	*	19	46	17	53	*	*	*	*	*	*	18	50
Total	0	0	0	0	3951	4039	3951	4049	0	0	0	0	0	0	3953	4047
Day	0			0	7990		8000		0		0		0		8000	
AM Peak	-	-	-	-	07:00	07:00	07:00	07:00	-	-	-	-	-	-	07:00	07:00
Vol.	-	-	-	-	534	195	532	181	-	-	-	-	-	-	533	188
PM Peak	-	-	-	-	15:00	17:00	15:00	17:00	-	-	-	-	-	-	15:00	17:00
Vol.	-	-	-	-	261	524	286	527	-	-	-	-	-	-	274	526

Comb. Total	0	0	7990	8000	0	0	0	8000
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Page 1

Community: Hanover
Com#_UR/FC: 122_U6
Recorder #: 13209
Layout: L6 Basic (2')

Station ID:
Site Code: 122
Date Start: 18-Nov-15
Date End: 19-Nov-15
Pleasant St, south of Cedar St

Start Time	18-Nov-15 Wed	NB		SB		Combined		19-Nov Thu	NB		SB		Combined	
		A.M.	P.M.	A.M.	P.M.	A.M.	P.M.		A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
12:00		1	45	6	47	7	92		2	34	8	36	10	70
12:15		1	42	4	50	5	92		2	52	9	56	11	108
12:30		0	51	6	41	6	92		3	37	3	44	6	81
12:45		1	39	3	44	4	83		5	35	3	37	8	72
01:00		1	44	6	59	7	103		0	37	7	44	7	81
01:15		0	33	9	56	9	89		1	42	4	52	5	94
01:30		2	52	4	56	6	108		0	45	2	50	2	95
01:45		2	54	0	52	2	106		1	62	0	54	1	116
02:00		1	61	2	59	3	120		0	74	1	46	1	120
02:15		2	38	2	70	4	108		2	46	3	84	5	130
02:30		2	69	1	87	3	156		1	50	2	68	3	118
02:45		3	53	0	88	3	141		5	67	1	108	6	175
03:00		4	63	2	115	6	178		0	68	1	95	1	163
03:15		0	66	1	116	1	182		3	63	3	110	6	173
03:30		3	63	0	119	3	182		2	76	3	127	5	203
03:45		5	69	1	132	6	201		5	79	0	114	5	193
04:00		6	69	1	110	7	179		6	69	2	111	8	180
04:15		7	55	0	133	7	188		10	58	2	111	12	169
04:30		28	53	5	114	33	167		23	53	4	107	27	160
04:45		42	69	5	126	47	195		46	51	6	149	52	200
05:00		58	65	2	136	60	201		72	53	3	128	75	181
05:15		64	59	9	154	73	213		61	63	11	151	72	214
05:30		73	48	7	126	80	174		68	45	11	135	79	180
05:45		68	43	18	108	86	151		65	51	21	113	86	164
06:00		75	37	12	94	87	131		59	46	14	91	73	137
06:15		77	37	18	70	95	107		92	42	24	94	116	136
06:30		87	37	23	71	110	108		92	34	17	73	109	107
06:45		101	41	34	78	135	119		116	28	28	63	144	91
07:00		140	36	35	55	175	91		151	27	37	66	188	93
07:15		121	25	56	59	177	84		111	32	62	60	173	92
07:30		150	14	71	51	221	65		149	17	56	34	205	51
07:45		123	17	33	45	156	62		121	24	26	49	147	73
08:00		109	22	40	40	149	62		112	21	29	39	141	60
08:15		104	14	42	43	146	57		92	19	27	46	119	65
08:30		78	13	29	39	107	52		77	15	49	32	126	47
08:45		77	13	47	30	124	43		69	17	47	34	116	51
09:00		71	18	32	34	103	52		67	11	50	36	117	47
09:15		67	9	35	35	102	44		69	12	38	31	107	43
09:30		70	7	31	34	101	41		55	13	35	32	90	45
09:45		41	10	28	18	69	28		60	10	28	23	88	33
10:00		55	11	32	18	87	29		40	11	29	29	69	40
10:15		47	11	31	16	78	27		43	12	42	31	85	43
10:30		52	4	49	14	101	18		46	8	44	14	90	22
10:45		47	4	42	15	89	19		49	7	37	18	86	25
11:00		36	5	23	10	59	15		39	5	32	9	71	14
11:15		52	8	27	14	79	22		42	1	40	16	82	17
11:30		51	3	30	8	81	11		37	4	21	15	58	19
11:45		44	3	42	14	86	17		47	7	49	13	96	20
Total		2249	1702	936	3103	3185	4805		2218	1733	971	3078	3189	4811
Day Total		3951		4039		7990			3951		4049		8000	
% Total		28.1%	21.3%	11.7%	38.8%				27.7%	21.7%	12.1%	38.5%		
Peak	-	07:00	03:15	07:15	04:45	07:00	04:45	-	07:00	03:15	08:30	04:45	07:00	04:45
Vol.	-	534	267	200	542	729	783	-	532	287	184	563	713	775
P.H.F.		0.890	0.967	0.704	0.880	0.825	0.919		0.881	0.908	0.742	0.932	0.870	0.905

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Page 1

Community: Hanover
Com#_UR/FC: 122_U6
Recorder #: 13209
Layout: L6 Basic (2')

Station ID:
Site Code: 122
Date Start: 18-Nov-15
Date End: 19-Nov-15
Pleasant St, south of Cedar St

Start Time	16-Nov-15 Mon	17-Nov-15 Tue	18-Nov-15 Wed	19-Nov-15 Thu	20-Nov-15 Fri	21-Nov-15 Sat	22-Nov-15 Sun	Week Average
12:00 AM	*	*	22	35	*	*	*	28
01:00	*	*	24	15	*	*	*	20
02:00	*	*	13	15	*	*	*	14
03:00	*	*	16	17	*	*	*	16
04:00	*	*	94	99	*	*	*	96
05:00	*	*	299	312	*	*	*	306
06:00	*	*	427	442	*	*	*	434
07:00	*	*	729	713	*	*	*	721
08:00	*	*	526	502	*	*	*	514
09:00	*	*	375	402	*	*	*	388
10:00	*	*	355	330	*	*	*	342
11:00	*	*	305	307	*	*	*	306
12:00 PM	*	*	359	331	*	*	*	345
01:00	*	*	406	386	*	*	*	396
02:00	*	*	525	543	*	*	*	534
03:00	*	*	743	732	*	*	*	738
04:00	*	*	729	709	*	*	*	719
05:00	*	*	739	739	*	*	*	739
06:00	*	*	465	471	*	*	*	468
07:00	*	*	302	309	*	*	*	306
08:00	*	*	214	223	*	*	*	218
09:00	*	*	165	168	*	*	*	166
10:00	*	*	93	130	*	*	*	112
11:00	*	*	65	70	*	*	*	68
Total	0	0	7990	8000	0	0	0	7994
Percentage	0.0%	0.0%	99.9%	100.1%	0.0%	0.0%	0.0%	
AM Peak	-	-	07:00	07:00	-	-	-	07:00
Vol.	-	-	729	713	-	-	-	721
PM Peak	-	-	15:00	17:00	-	-	-	17:00
Vol.	-	-	743	739	-	-	-	739

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Community: Hanover
Com#_UR/FC: 122_U6
Recorder #: 13209
Layout: L6 Basic (2')

Station ID:
Site Code: 122
Date Start: 18-Nov-15
Date End: 19-Nov-15
Pleasant St, south of Cedar St

NB

Start Time	1 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 80	81 85	86 90	91 95	96 999	Total
11/18/15	1	0	1	0	1	0	0	0	0	0	0	0	0	0	3
01:00	3	1	1	0	0	0	0	0	0	0	0	0	0	0	5
02:00	3	3	1	1	0	0	0	0	0	0	0	0	0	0	8
03:00	0	5	3	3	1	0	0	0	0	0	0	0	0	0	12
04:00	8	34	30	11	0	0	0	0	0	0	0	0	0	0	83
05:00	35	138	72	14	2	2	0	0	0	0	0	0	0	0	263
06:00	82	158	90	8	2	0	0	0	0	0	0	0	0	0	340
07:00	208	217	102	7	0	0	0	0	0	0	0	0	0	0	534
08:00	101	179	78	10	0	0	0	0	0	0	0	0	0	0	368
09:00	65	124	56	4	0	0	0	0	0	0	0	0	0	0	249
10:00	58	94	46	3	0	0	0	0	0	0	0	0	0	0	201
11:00	64	80	35	4	0	0	0	0	0	0	0	0	0	0	183
12 PM	64	80	30	3	0	0	0	0	0	0	0	0	0	0	177
13:00	62	81	35	4	1	0	0	0	0	0	0	0	0	0	183
14:00	75	97	43	6	0	0	0	0	0	0	0	0	0	0	221
15:00	60	134	62	4	1	0	0	0	0	0	0	0	0	0	261
16:00	86	118	36	6	0	0	0	0	0	0	0	0	0	0	246
17:00	102	83	29	1	0	0	0	0	0	0	0	0	0	0	215
18:00	55	69	22	4	2	0	0	0	0	0	0	0	0	0	152
19:00	25	46	19	2	0	0	0	0	0	0	0	0	0	0	92
20:00	14	35	9	3	1	0	0	0	0	0	0	0	0	0	62
21:00	14	13	12	5	0	0	0	0	0	0	0	0	0	0	44
22:00	10	12	3	4	1	0	0	0	0	0	0	0	0	0	30
23:00	1	11	4	2	0	1	0	0	0	0	0	0	0	0	19
Total	1196	1812	819	109	12	3	0	0	0	0	0	0	0	0	3951

Daily

15th Percentile :	17 MPH
50th Percentile :	37 MPH
85th Percentile :	42 MPH
95th Percentile :	44 MPH
Mean Speed(Average) :	33 MPH
10 MPH Pace Speed :	36-45 MPH
Number in Pace :	2631
Percent in Pace :	66.6%
Number of Vehicles > 40 MPH :	943
Percent of Vehicles > 40 MPH :	23.9%

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Community: Hanover
Com#_UR/FC: 122_U6
Recorder #: 13209
Layout: L6 Basic (2')

Station ID:
Site Code: 122
Date Start: 18-Nov-15
Date End: 19-Nov-15
Pleasant St, south of Cedar St

NB

Start Time	1 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 80	81 85	86 90	91 95	96 999	Total
11/19/15	5	4	2	1	0	0	0	0	0	0	0	0	0	0	12
01:00	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2
02:00	2	3	3	0	0	0	0	0	0	0	0	0	0	0	8
03:00	3	3	2	1	1	0	0	0	0	0	0	0	0	0	10
04:00	4	38	34	8	1	0	0	0	0	0	0	0	0	0	85
05:00	42	115	95	9	5	0	0	0	0	0	0	0	0	0	266
06:00	106	185	64	4	0	0	0	0	0	0	0	0	0	0	359
07:00	121	278	113	20	0	0	0	0	0	0	0	0	0	0	532
08:00	91	146	102	10	1	0	0	0	0	0	0	0	0	0	350
09:00	49	128	70	4	0	0	0	0	0	0	0	0	0	0	251
10:00	40	77	48	11	2	0	0	0	0	0	0	0	0	0	178
11:00	36	66	44	17	2	0	0	0	0	0	0	0	0	0	165
12 PM	26	59	61	11	1	0	0	0	0	0	0	0	0	0	158
13:00	42	82	56	6	0	0	0	0	0	0	0	0	0	0	186
14:00	90	95	46	5	1	0	0	0	0	0	0	0	0	0	237
15:00	78	119	76	13	0	0	0	0	0	0	0	0	0	0	286
16:00	96	98	33	3	0	0	0	0	1	0	0	0	0	0	231
17:00	67	101	41	2	1	0	0	0	0	0	0	0	0	0	212
18:00	33	79	34	4	0	0	0	0	0	0	0	0	0	0	150
19:00	25	46	25	3	1	0	0	0	0	0	0	0	0	0	100
20:00	15	31	22	4	0	0	0	0	0	0	0	0	0	0	72
21:00	13	17	13	3	0	0	0	0	0	0	0	0	0	0	46
22:00	4	14	15	5	0	0	0	0	0	0	0	0	0	0	38
23:00	2	5	4	4	2	0	0	0	0	0	0	0	0	0	17
Total	991	1790	1003	148	18	0	0	0	1	0	0	0	0	0	3951

Daily

15th Percentile : 20 MPH
50th Percentile : 37 MPH
85th Percentile : 42 MPH
95th Percentile : 44 MPH

Mean Speed(Average) : 35 MPH
10 MPH Pace Speed : 36-45 MPH
Number in Pace : 2793
Percent in Pace : 70.7%
Number of Vehicles > 40 MPH : 1170
Percent of Vehicles > 40 MPH : 29.6%

Grand Total	2187	3602	1822	257	30	3	0	0	1	0	0	0	0	0	7902
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Overall

15th Percentile : 18 MPH
50th Percentile : 37 MPH
85th Percentile : 42 MPH
95th Percentile : 44 MPH

Mean Speed(Average) : 34 MPH
10 MPH Pace Speed : 36-45 MPH
Number in Pace : 5424
Percent in Pace : 68.6%
Number of Vehicles > 40 MPH : 2113
Percent of Vehicles > 40 MPH : 26.7%

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Community: Hanover
Com#_UR/FC: 122_U6
Recorder #: 13209
Layout: L6 Basic (2')

Station ID:
Site Code: 122
Date Start: 18-Nov-15
Date End: 19-Nov-15
Pleasant St, south of Cedar St

SB

Start Time	1 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 80	81 85	86 90	91 95	96 999	Total
11/18/15	1	12	5	1	0	0	0	0	0	0	0	0	0	0	19
01:00	8	9	2	0	0	0	0	0	0	0	0	0	0	0	19
02:00	1	2	1	1	0	0	0	0	0	0	0	0	0	0	5
03:00	0	2	2	0	0	0	0	0	0	0	0	0	0	0	4
04:00	2	5	3	0	0	0	1	0	0	0	0	0	0	0	11
05:00	12	18	6	0	0	0	0	0	0	0	0	0	0	0	36
06:00	38	38	9	2	0	0	0	0	0	0	0	0	0	0	87
07:00	95	76	23	1	0	0	0	0	0	0	0	0	0	0	195
08:00	67	72	18	1	0	0	0	0	0	0	0	0	0	0	158
09:00	55	49	20	2	0	0	0	0	0	0	0	0	0	0	126
10:00	60	77	15	1	1	0	0	0	0	0	0	0	0	0	154
11:00	34	71	16	1	0	0	0	0	0	0	0	0	0	0	122
12 PM	85	81	12	3	1	0	0	0	0	0	0	0	0	0	182
13:00	72	121	28	2	0	0	0	0	0	0	0	0	0	0	223
14:00	146	120	38	0	0	0	0	0	0	0	0	0	0	0	304
15:00	255	196	31	0	0	0	0	0	0	0	0	0	0	0	482
16:00	245	209	27	2	0	0	0	0	0	0	0	0	0	0	483
17:00	391	113	19	1	0	0	0	0	0	0	0	0	0	0	524
18:00	164	125	24	0	0	0	0	0	0	0	0	0	0	0	313
19:00	71	116	21	2	0	0	0	0	0	0	0	0	0	0	210
20:00	47	81	22	2	0	0	0	0	0	0	0	0	0	0	152
21:00	35	64	22	0	0	0	0	0	0	0	0	0	0	0	121
22:00	10	27	24	2	0	0	0	0	0	0	0	0	0	0	63
23:00	6	21	18	1	0	0	0	0	0	0	0	0	0	0	46
Total	1900	1705	406	25	2	0	1	0	0	0	0	0	0	0	4039

Daily

15th Percentile :	11 MPH
50th Percentile :	35 MPH
85th Percentile :	39 MPH
95th Percentile :	42 MPH
Mean Speed(Average) :	29 MPH
10 MPH Pace Speed :	36-45 MPH
Number in Pace :	2111
Percent in Pace :	52.3%
Number of Vehicles > 40 MPH :	434
Percent of Vehicles > 40 MPH :	10.7%

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Community: Hanover
Com#_UR/FC: 122_U6
Recorder #: 13209
Layout: L6 Basic (2')

Station ID:
Site Code: 122
Date Start: 18-Nov-15
Date End: 19-Nov-15
Pleasant St, south of Cedar St

SB

Start Time	1 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 80	81 85	86 90	91 95	96 999	Total
11/19/15	7	11	4	1	0	0	0	0	0	0	0	0	0	0	23
01:00	2	5	4	2	0	0	0	0	0	0	0	0	0	0	13
02:00	1	4	2	0	0	0	0	0	0	0	0	0	0	0	7
03:00	3	3	1	0	0	0	0	0	0	0	0	0	0	0	7
04:00	3	9	2	0	0	0	0	0	0	0	0	0	0	0	14
05:00	18	20	8	0	0	0	0	0	0	0	0	0	0	0	46
06:00	34	40	8	1	0	0	0	0	0	0	0	0	0	0	83
07:00	87	78	12	4	0	0	0	0	0	0	0	0	0	0	181
08:00	61	67	19	5	0	0	0	0	0	0	0	0	0	0	152
09:00	70	66	14	1	0	0	0	0	0	0	0	0	0	0	151
10:00	71	66	14	1	0	0	0	0	0	0	0	0	0	0	152
11:00	51	65	22	3	0	1	0	0	0	0	0	0	0	0	142
12 PM	64	91	17	1	0	0	0	0	0	0	0	0	0	0	173
13:00	68	95	36	1	0	0	0	0	0	0	0	0	0	0	200
14:00	135	140	29	2	0	0	0	0	0	0	0	0	0	0	306
15:00	251	158	33	4	0	0	0	0	0	0	0	0	0	0	446
16:00	340	124	14	0	0	0	0	0	0	0	0	0	0	0	478
17:00	348	169	10	0	0	0	0	0	0	0	0	0	0	0	527
18:00	168	134	17	2	0	0	0	0	0	0	0	0	0	0	321
19:00	106	86	17	0	0	0	0	0	0	0	0	0	0	0	209
20:00	69	69	12	1	0	0	0	0	0	0	0	0	0	0	151
21:00	59	53	7	3	0	0	0	0	0	0	0	0	0	0	122
22:00	24	51	13	3	1	0	0	0	0	0	0	0	0	0	92
23:00	13	27	11	2	0	0	0	0	0	0	0	0	0	0	53
Total	2053	1631	326	37	1	1	0	0	0	0	0	0	0	0	4049

Daily

15th Percentile : 10 MPH
50th Percentile : 34 MPH
85th Percentile : 39 MPH
95th Percentile : 42 MPH

Mean Speed(Average) : 28 MPH
10 MPH Pace Speed : 36-45 MPH
Number in Pace : 1957
Percent in Pace : 48.3%
Number of Vehicles > 40 MPH : 365
Percent of Vehicles > 40 MPH : 9.0%

Grand Total	3953	3336	732	62	3	1	1	0	0	0	0	0	0	0	8088
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Overall

15th Percentile : 10 MPH
50th Percentile : 35 MPH
85th Percentile : 39 MPH
95th Percentile : 42 MPH

Mean Speed(Average) : 29 MPH
10 MPH Pace Speed : 36-45 MPH
Number in Pace : 4068
Percent in Pace : 50.3%
Number of Vehicles > 40 MPH : 799
Percent of Vehicles > 40 MPH : 9.9%

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Community: Hanover
Com#_UR/FC: 122_U6
Recorder #: 13209
Layout: L6 Basic (2')

Station ID:
Site Code: 122
Date Start: 18-Nov-15
Date End: 19-Nov-15
Pleasant St, south of Cedar St

NB, SB

Start Time	1 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 80	81 85	86 90	91 95	96 999	Total
11/18/15	2	12	6	1	1	0	0	0	0	0	0	0	0	0	22
01:00	11	10	3	0	0	0	0	0	0	0	0	0	0	0	24
02:00	4	5	2	2	0	0	0	0	0	0	0	0	0	0	13
03:00	0	7	5	3	1	0	0	0	0	0	0	0	0	0	16
04:00	10	39	33	11	0	0	1	0	0	0	0	0	0	0	94
05:00	47	156	78	14	2	2	0	0	0	0	0	0	0	0	299
06:00	120	196	99	10	2	0	0	0	0	0	0	0	0	0	427
07:00	303	293	125	8	0	0	0	0	0	0	0	0	0	0	729
08:00	168	251	96	11	0	0	0	0	0	0	0	0	0	0	526
09:00	120	173	76	6	0	0	0	0	0	0	0	0	0	0	375
10:00	118	171	61	4	1	0	0	0	0	0	0	0	0	0	355
11:00	98	151	51	5	0	0	0	0	0	0	0	0	0	0	305
12 PM	149	161	42	6	1	0	0	0	0	0	0	0	0	0	359
13:00	134	202	63	6	1	0	0	0	0	0	0	0	0	0	406
14:00	221	217	81	6	0	0	0	0	0	0	0	0	0	0	525
15:00	315	330	93	4	1	0	0	0	0	0	0	0	0	0	743
16:00	331	327	63	8	0	0	0	0	0	0	0	0	0	0	729
17:00	493	196	48	2	0	0	0	0	0	0	0	0	0	0	739
18:00	219	194	46	4	2	0	0	0	0	0	0	0	0	0	465
19:00	96	162	40	4	0	0	0	0	0	0	0	0	0	0	302
20:00	61	116	31	5	1	0	0	0	0	0	0	0	0	0	214
21:00	49	77	34	5	0	0	0	0	0	0	0	0	0	0	165
22:00	20	39	27	6	1	0	0	0	0	0	0	0	0	0	93
23:00	7	32	22	3	0	1	0	0	0	0	0	0	0	0	65
Total	3096	3517	1225	134	14	3	1	0	0	0	0	0	0	0	7990

Daily

15th Percentile :	13 MPH
50th Percentile :	36 MPH
85th Percentile :	40 MPH
95th Percentile :	43 MPH
Mean Speed(Average) :	31 MPH
10 MPH Pace Speed :	36-45 MPH
Number in Pace :	4742
Percent in Pace :	59.3%
Number of Vehicles > 40 MPH :	1377
Percent of Vehicles > 40 MPH :	17.2%

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Community: Hanover
Com#_UR/FC: 122_U6
Recorder #: 13209
Layout: L6 Basic (2')

Station ID:
Site Code: 122
Date Start: 18-Nov-15
Date End: 19-Nov-15
Pleasant St, south of Cedar St

NB, SB

Start Time	1 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 80	81 85	86 90	91 95	96 999	Total
11/19/15	12	15	6	2	0	0	0	0	0	0	0	0	0	0	35
01:00	3	6	4	2	0	0	0	0	0	0	0	0	0	0	15
02:00	3	7	5	0	0	0	0	0	0	0	0	0	0	0	15
03:00	6	6	3	1	1	0	0	0	0	0	0	0	0	0	17
04:00	7	47	36	8	1	0	0	0	0	0	0	0	0	0	99
05:00	60	135	103	9	5	0	0	0	0	0	0	0	0	0	312
06:00	140	225	72	5	0	0	0	0	0	0	0	0	0	0	442
07:00	208	356	125	24	0	0	0	0	0	0	0	0	0	0	713
08:00	152	213	121	15	1	0	0	0	0	0	0	0	0	0	502
09:00	119	194	84	5	0	0	0	0	0	0	0	0	0	0	402
10:00	111	143	62	12	2	0	0	0	0	0	0	0	0	0	330
11:00	87	131	66	20	2	1	0	0	0	0	0	0	0	0	307
12 PM	90	150	78	12	1	0	0	0	0	0	0	0	0	0	331
13:00	110	177	92	7	0	0	0	0	0	0	0	0	0	0	386
14:00	225	235	75	7	1	0	0	0	0	0	0	0	0	0	543
15:00	329	277	109	17	0	0	0	0	0	0	0	0	0	0	732
16:00	436	222	47	3	0	0	0	0	1	0	0	0	0	0	709
17:00	415	270	51	2	1	0	0	0	0	0	0	0	0	0	739
18:00	201	213	51	6	0	0	0	0	0	0	0	0	0	0	471
19:00	131	132	42	3	1	0	0	0	0	0	0	0	0	0	309
20:00	84	100	34	5	0	0	0	0	0	0	0	0	0	0	223
21:00	72	70	20	6	0	0	0	0	0	0	0	0	0	0	168
22:00	28	65	28	8	1	0	0	0	0	0	0	0	0	0	130
23:00	15	32	15	6	2	0	0	0	0	0	0	0	0	0	70
Total	3044	3421	1329	185	19	1	0	0	1	0	0	0	0	0	8000

Daily

15th Percentile : 13 MPH
50th Percentile : 36 MPH
85th Percentile : 41 MPH
95th Percentile : 44 MPH

Mean Speed(Average) : 31 MPH
10 MPH Pace Speed : 36-45 MPH
Number in Pace : 4750
Percent in Pace : 59.4%
Number of Vehicles > 40 MPH : 1535
Percent of Vehicles > 40 MPH : 19.2%

Grand Total	6140	6938	2554	319	33	4	1	0	1	0	0	0	0	0	15990
----------------	------	------	------	-----	----	---	---	---	---	---	---	---	---	---	-------

Overall

15th Percentile : 13 MPH
50th Percentile : 36 MPH
85th Percentile : 41 MPH
95th Percentile : 44 MPH

Mean Speed(Average) : 31 MPH
10 MPH Pace Speed : 36-45 MPH
Number in Pace : 9492
Percent in Pace : 59.4%
Number of Vehicles > 40 MPH : 2912
Percent of Vehicles > 40 MPH : 18.2%

Old Colony Planning Council
70 School Street
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Page 1

Community: Hanover
Com#_UR/FC: 122_U6
Recorder #: 13209
Layout: L6 Basic (2')

Station ID:
Site Code: 122
Date Start: 18-Nov-15
Date End: 19-Nov-15
Pleasant St, south of Cedar St

NB

Start Time	Bikes	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total	Truck Total
11/18/15	0	1	2	0	0	0	0	0	0	0	0	0	0	3	0
01:00	0	5	0	0	0	0	0	0	0	0	0	0	0	5	0
02:00	0	5	1	0	1	0	0	0	1	0	0	0	0	8	2
03:00	0	8	4	0	0	0	0	0	0	0	0	0	0	12	0
04:00	0	44	25	0	9	0	2	0	3	0	0	0	0	83	14
05:00	1	136	73	4	35	3	2	1	8	0	0	0	0	263	53
06:00	1	209	75	3	31	2	7	2	10	0	0	0	0	340	55
07:00	11	357	114	13	29	4	2	3	0	0	0	0	0	533	51
08:00	3	246	91	4	15	4	3	0	2	0	0	0	0	368	28
09:00	2	161	59	2	10	6	5	2	2	0	0	0	0	249	27
10:00	0	129	38	5	16	4	5	2	2	0	0	0	0	201	34
11:00	2	114	39	0	12	4	5	2	5	0	0	0	0	183	28
12 PM	1	113	35	4	11	3	5	2	3	0	0	0	0	177	28
13:00	1	105	43	11	11	4	5	1	1	0	0	0	0	182	33
14:00	3	137	42	13	19	2	1	1	3	0	0	0	0	221	39
15:00	2	160	76	2	15	3	2	1	0	0	0	0	0	261	23
16:00	4	164	57	0	17	3	0	1	0	0	0	0	0	246	21
17:00	4	146	51	0	11	1	0	1	1	0	0	0	0	215	14
18:00	1	115	30	0	6	0	0	0	0	0	0	0	0	152	6
19:00	0	58	21	0	13	0	0	0	0	0	0	0	0	92	13
20:00	0	43	12	0	6	0	0	0	1	0	0	0	0	62	7
21:00	0	31	11	0	1	0	0	0	1	0	0	0	0	44	2
22:00	0	23	5	0	2	0	0	0	0	0	0	0	0	30	2
23:00	0	16	3	0	0	0	0	0	0	0	0	0	0	19	0
Total	36	2526	907	61	270	43	44	19	43	0	0	0	0	3949	480
Percent	0.9%	64.0%	23.0%	1.5%	6.8%	1.1%	1.1%	0.5%	1.1%	0.0%	0.0%	0.0%	0.0%		12.2%
AM Peak	07:00	07:00	07:00	07:00	05:00	09:00	06:00	07:00	06:00					07:00	06:00
Vol.	11	357	114	13	35	6	7	3	10					533	55
PM Peak	16:00	16:00	15:00	14:00	14:00	13:00	12:00	12:00	12:00					15:00	14:00
Vol.	4	164	76	13	19	4	5	2	3					261	39

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Page 2

Community: Hanover
Com#_UR/FC: 122_U6
Recorder #: 13209
Layout: L6 Basic (2')

Station ID:
Site Code: 122
Date Start: 18-Nov-15
Date End: 19-Nov-15
Pleasant St, south of Cedar St

NB

Start Time	Bikes	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total	Truck Total
11/19/15	0	9	2	0	1	0	0	0	0	0	0	0	0	12	1
01:00	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0
02:00	0	6	0	0	1	0	0	0	1	0	0	0	0	8	2
03:00	0	7	1	0	1	1	0	0	0	0	0	0	0	10	2
04:00	0	36	28	0	15	1	2	0	3	0	0	0	0	85	21
05:00	0	134	77	5	37	1	3	1	8	0	0	0	0	266	55
06:00	1	226	84	3	26	4	5	0	10	0	0	0	0	359	48
07:00	8	342	127	14	31	3	4	1	2	0	0	0	0	532	55
08:00	0	227	90	2	21	3	4	2	1	0	0	0	0	350	33
09:00	0	142	61	3	31	6	5	1	2	0	0	0	0	251	48
10:00	2	114	36	1	19	2	1	1	2	0	0	0	0	178	26
11:00	0	97	41	2	14	3	6	1	1	0	0	0	0	165	27
12 PM	1	97	37	0	16	2	4	1	0	0	0	0	0	158	23
13:00	2	85	61	10	18	3	3	2	2	0	0	0	0	186	38
14:00	1	126	68	16	15	4	3	3	0	0	0	0	0	236	41
15:00	3	170	81	5	22	4	0	1	0	0	0	0	0	286	32
16:00	2	160	49	2	14	4	0	0	0	0	0	0	0	231	20
17:00	3	145	46	0	15	0	0	0	0	0	0	0	0	209	15
18:00	1	99	37	0	12	1	0	0	0	0	0	0	0	150	13
19:00	0	65	25	0	9	1	0	0	0	0	0	0	0	100	10
20:00	0	45	21	0	6	0	0	0	0	0	0	0	0	72	6
21:00	0	32	11	0	2	0	0	0	1	0	0	0	0	46	3
22:00	0	28	6	0	4	0	0	0	0	0	0	0	0	38	4
23:00	0	9	8	0	0	0	0	0	0	0	0	0	0	17	0
Total	24	2403	997	63	330	43	40	14	33	0	0	0	0	3947	523
Percent	0.6%	60.9%	25.3%	1.6%	8.4%	1.1%	1.0%	0.4%	0.8%	0.0%	0.0%	0.0%	0.0%		13.3%
AM Peak	07:00	07:00	07:00	07:00	05:00	09:00	11:00	08:00	06:00					07:00	05:00
Vol.	8	342	127	14	37	6	6	2	10					532	55
PM Peak	15:00	15:00	15:00	14:00	15:00	14:00	12:00	14:00	13:00					15:00	14:00
Vol.	3	170	81	16	22	4	4	3	2					286	41
Grand Total	60	4929	1904	124	600	86	84	33	76	0	0	0	0	7896	1003
Percent	0.8%	62.4%	24.1%	1.6%	7.6%	1.1%	1.1%	0.4%	1.0%	0.0%	0.0%	0.0%	0.0%		12.7%

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Page 3

Community: Hanover
Com#_UR/FC: 122_U6
Recorder #: 13209
Layout: L6 Basic (2')

Station ID:
Site Code: 122
Date Start: 18-Nov-15
Date End: 19-Nov-15
Pleasant St, south of Cedar St

SB

Start Time	Bikes	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total	Truck Total
11/18/15	0	13	5	0	1	0	0	0	0	0	0	0	0	19	1
01:00	0	15	4	0	0	0	0	0	0	0	0	0	0	19	0
02:00	0	2	1	0	2	0	0	0	0	0	0	0	0	5	2
03:00	0	1	1	0	1	1	0	0	0	0	0	0	0	4	2
04:00	0	9	2	0	0	0	0	0	0	0	0	0	0	11	0
05:00	0	24	11	0	1	0	0	0	0	0	0	0	0	36	1
06:00	3	47	23	2	6	5	1	0	0	0	0	0	0	87	14
07:00	4	120	54	5	7	1	1	0	2	0	0	0	0	194	16
08:00	1	94	34	4	10	7	2	1	5	0	0	0	0	158	29
09:00	1	73	28	3	9	9	1	2	0	0	0	0	0	126	24
10:00	2	86	41	1	10	10	1	2	1	0	0	0	0	154	25
11:00	1	66	32	4	8	8	0	2	1	0	0	0	0	122	23
12 PM	0	110	49	2	11	6	2	0	2	0	0	0	0	182	23
13:00	4	138	54	3	7	9	0	4	4	0	0	0	0	223	27
14:00	2	183	90	7	10	6	0	2	3	0	0	0	0	303	28
15:00	3	289	149	6	18	7	1	2	4	0	0	0	0	479	38
16:00	4	328	122	2	17	6	0	4	0	0	0	0	0	483	29
17:00	3	369	130	3	14	2	1	2	0	0	0	0	0	524	22
18:00	1	239	67	2	3	0	1	0	0	0	0	0	0	313	6
19:00	1	156	46	1	6	0	0	0	0	0	0	0	0	210	7
20:00	0	123	28	0	1	0	0	0	0	0	0	0	0	152	1
21:00	0	95	24	0	1	0	0	0	1	0	0	0	0	121	2
22:00	0	44	18	0	1	0	0	0	0	0	0	0	0	63	1
23:00	0	36	9	0	1	0	0	0	0	0	0	0	0	46	1
Total	30	2660	1022	45	145	77	11	21	23	0	0	0	0	4034	322
Percent	0.7%	65.9%	25.3%	1.1%	3.6%	1.9%	0.3%	0.5%	0.6%	0.0%	0.0%	0.0%	0.0%		8.0%
AM Peak	07:00	07:00	07:00	07:00	08:00	10:00	08:00	09:00	08:00					07:00	08:00
Vol.	4	120	54	5	10	10	2	2	5					194	29
PM Peak	13:00	17:00	15:00	14:00	15:00	13:00	12:00	13:00	13:00					17:00	15:00
Vol.	4	369	149	7	18	9	2	4	4					524	38

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Community: Hanover
Com#_UR/FC: 122_U6
Recorder #: 13209
Layout: L6 Basic (2')

Station ID:
Site Code: 122
Date Start: 18-Nov-15
Date End: 19-Nov-15
Pleasant St, south of Cedar St

SB

Start Time	Bikes	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total	Truck Total
11/19/15	0	17	6	0	0	0	0	0	0	0	0	0	0	23	0
01:00	0	10	2	0	1	0	0	0	0	0	0	0	0	13	1
02:00	0	5	1	0	1	0	0	0	0	0	0	0	0	7	1
03:00	0	3	3	0	1	0	0	0	0	0	0	0	0	7	1
04:00	0	10	4	0	0	0	0	0	0	0	0	0	0	14	0
05:00	0	30	15	1	0	0	0	0	0	0	0	0	0	46	1
06:00	1	45	24	1	6	6	0	0	0	0	0	0	0	83	13
07:00	4	110	54	3	5	3	0	0	2	0	0	0	0	181	13
08:00	0	90	42	7	5	6	0	1	1	0	0	0	0	152	20
09:00	2	78	44	2	11	9	0	2	2	0	0	0	0	150	26
10:00	2	79	47	2	10	9	1	0	2	0	0	0	0	152	24
11:00	1	81	41	0	8	4	0	2	4	0	0	0	0	141	18
12 PM	0	112	42	3	5	8	0	2	1	0	0	0	0	173	19
13:00	3	116	54	4	9	10	2	2	0	0	0	0	0	200	27
14:00	0	190	96	6	8	4	0	1	1	0	0	0	0	306	20
15:00	1	269	131	8	20	9	0	2	5	0	0	0	0	445	44
16:00	1	331	117	5	14	5	0	5	0	0	0	0	0	478	29
17:00	2	385	114	2	18	2	0	1	2	0	0	0	0	526	25
18:00	2	248	62	3	5	0	0	1	0	0	0	0	0	321	9
19:00	0	161	39	0	7	0	0	1	1	0	0	0	0	209	9
20:00	0	112	38	0	1	0	0	0	0	0	0	0	0	151	1
21:00	0	96	25	0	1	0	0	0	0	0	0	0	0	122	1
22:00	0	70	22	0	0	0	0	0	0	0	0	0	0	92	0
23:00	0	40	11	1	1	0	0	0	0	0	0	0	0	53	2
Total	19	2688	1034	48	137	75	3	20	21	0	0	0	0	4045	304
Percent	0.5%	66.5%	25.6%	1.2%	3.4%	1.9%	0.1%	0.5%	0.5%	0.0%	0.0%	0.0%	0.0%		7.5%
AM Peak	07:00	07:00	07:00	08:00	09:00	09:00	10:00	09:00	11:00					07:00	09:00
Vol.	4	110	54	7	11	9	1	2	4					181	26
PM Peak	13:00	17:00	15:00	15:00	15:00	13:00	13:00	16:00	15:00					17:00	15:00
Vol.	3	385	131	8	20	10	2	5	5					526	44
Grand Total	49	5348	2056	93	282	152	14	41	44	0	0	0	0	8079	626
Percent	0.6%	66.2%	25.4%	1.2%	3.5%	1.9%	0.2%	0.5%	0.5%	0.0%	0.0%	0.0%	0.0%		7.7%

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Community: Hanover
Com#_UR/FC: 122_U6
Recorder #: 13209
Layout: L6 Basic (2')

Station ID:
Site Code: 122
Date Start: 18-Nov-15
Date End: 19-Nov-15
Pleasant St, south of Cedar St

NB, SB

Start Time	Bikes	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total	Truck Total
11/18/15	0	14	7	0	1	0	0	0	0	0	0	0	0	22	1
01:00	0	20	4	0	0	0	0	0	0	0	0	0	0	24	0
02:00	0	7	2	0	3	0	0	0	1	0	0	0	0	13	4
03:00	0	9	5	0	1	1	0	0	0	0	0	0	0	16	2
04:00	0	53	27	0	9	0	2	0	3	0	0	0	0	94	14
05:00	1	160	84	4	36	3	2	1	8	0	0	0	0	299	54
06:00	4	256	98	5	37	7	8	2	10	0	0	0	0	427	69
07:00	15	477	168	18	36	5	3	3	2	0	0	0	0	727	67
08:00	4	340	125	8	25	11	5	1	7	0	0	0	0	526	57
09:00	3	234	87	5	19	15	6	4	2	0	0	0	0	375	51
10:00	2	215	79	6	26	14	6	4	3	0	0	0	0	355	59
11:00	3	180	71	4	20	12	5	4	6	0	0	0	0	305	51
12 PM	1	223	84	6	22	9	7	2	5	0	0	0	0	359	51
13:00	5	243	97	14	18	13	5	5	5	0	0	0	0	405	60
14:00	5	320	132	20	29	8	1	3	6	0	0	0	0	524	67
15:00	5	449	225	8	33	10	3	3	4	0	0	0	0	740	61
16:00	8	492	179	2	34	9	0	5	0	0	0	0	0	729	50
17:00	7	515	181	3	25	3	1	3	1	0	0	0	0	739	36
18:00	2	354	97	2	9	0	1	0	0	0	0	0	0	465	12
19:00	1	214	67	1	19	0	0	0	0	0	0	0	0	302	20
20:00	0	166	40	0	7	0	0	0	1	0	0	0	0	214	8
21:00	0	126	35	0	2	0	0	0	2	0	0	0	0	165	4
22:00	0	67	23	0	3	0	0	0	0	0	0	0	0	93	3
23:00	0	52	12	0	1	0	0	0	0	0	0	0	0	65	1
Total	66	5186	1929	106	415	120	55	40	66	0	0	0	0	7983	802
Percent	0.8%	65.0%	24.2%	1.3%	5.2%	1.5%	0.7%	0.5%	0.8%	0.0%	0.0%	0.0%	0.0%		10.0%
AM Peak	07:00	07:00	07:00	07:00	06:00	09:00	06:00	09:00	06:00					07:00	06:00
Vol.	15	477	168	18	37	15	8	4	10					727	69
PM Peak	16:00	17:00	15:00	14:00	16:00	13:00	12:00	13:00	14:00					15:00	14:00
Vol.	8	515	225	20	34	13	7	5	6					740	67

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Community: Hanover
Com#_UR/FC: 122_U6
Recorder #: 13209
Layout: L6 Basic (2')

Station ID:
Site Code: 122
Date Start: 18-Nov-15
Date End: 19-Nov-15
Pleasant St, south of Cedar St

NB, SB

Start Time	Bikes	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total	Truck Total
11/19/15	0	26	8	0	1	0	0	0	0	0	0	0	0	35	1
01:00	0	12	2	0	1	0	0	0	0	0	0	0	0	15	1
02:00	0	11	1	0	2	0	0	0	1	0	0	0	0	15	3
03:00	0	10	4	0	2	1	0	0	0	0	0	0	0	17	3
04:00	0	46	32	0	15	1	2	0	3	0	0	0	0	99	21
05:00	0	164	92	6	37	1	3	1	8	0	0	0	0	312	56
06:00	2	271	108	4	32	10	5	0	10	0	0	0	0	442	61
07:00	12	452	181	17	36	6	4	1	4	0	0	0	0	713	68
08:00	0	317	132	9	26	9	4	3	2	0	0	0	0	502	53
09:00	2	220	105	5	42	15	5	3	4	0	0	0	0	401	74
10:00	4	193	83	3	29	11	2	1	4	0	0	0	0	330	50
11:00	1	178	82	2	22	7	6	3	5	0	0	0	0	306	45
12 PM	1	209	79	3	21	10	4	3	1	0	0	0	0	331	42
13:00	5	201	115	14	27	13	5	4	2	0	0	0	0	386	65
14:00	1	316	164	22	23	8	3	4	1	0	0	0	0	542	61
15:00	4	439	212	13	42	13	0	3	5	0	0	0	0	731	76
16:00	3	491	166	7	28	9	0	5	0	0	0	0	0	709	49
17:00	5	530	160	2	33	2	0	1	2	0	0	0	0	735	40
18:00	3	347	99	3	17	1	0	1	0	0	0	0	0	471	22
19:00	0	226	64	0	16	1	0	1	1	0	0	0	0	309	19
20:00	0	157	59	0	7	0	0	0	0	0	0	0	0	223	7
21:00	0	128	36	0	3	0	0	0	1	0	0	0	0	168	4
22:00	0	98	28	0	4	0	0	0	0	0	0	0	0	130	4
23:00	0	49	19	1	1	0	0	0	0	0	0	0	0	70	2
Total	43	5091	2031	111	467	118	43	34	54	0	0	0	0	7992	827
Percent	0.5%	63.7%	25.4%	1.4%	5.8%	1.5%	0.5%	0.4%	0.7%	0.0%	0.0%	0.0%	0.0%		10.3%
AM Peak	07:00	07:00	07:00	07:00	09:00	09:00	11:00	08:00	06:00					07:00	09:00
Vol.	12	452	181	17	42	15	6	3	10					713	74
PM Peak	13:00	17:00	15:00	14:00	15:00	13:00	13:00	16:00	15:00					17:00	15:00
Vol.	5	530	212	22	42	13	5	5	5					735	76
Grand Total	109	10277	3960	217	882	238	98	74	120	0	0	0	0	15975	1629
Percent	0.7%	64.3%	24.8%	1.4%	5.5%	1.5%	0.6%	0.5%	0.8%	0.0%	0.0%	0.0%	0.0%		10.2%

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Community: Hanover
Com#_UR/FC: 122_U6
Recorder #: 22929
Layout: L6 Basic (2')

Station ID:
Site Code: 122
Date Start: 18-Nov-15
Date End: 19-Nov-15
Cedar St, east of Whiting St

Start Time	16-Nov-15		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB
12:00 AM	*	*	*	*	2	2	1	1	*	*	*	*	*	*	2	2
01:00	*	*	*	*	1	3	2	0	*	*	*	*	*	*	2	2
02:00	*	*	*	*	0	1	0	1	*	*	*	*	*	*	0	1
03:00	*	*	*	*	0	0	1	2	*	*	*	*	*	*	0	1
04:00	*	*	*	*	1	6	1	5	*	*	*	*	*	*	1	6
05:00	*	*	*	*	1	14	3	17	*	*	*	*	*	*	2	16
06:00	*	*	*	*	27	37	23	30	*	*	*	*	*	*	25	34
07:00	*	*	*	*	169	217	177	224	*	*	*	*	*	*	173	220
08:00	*	*	*	*	52	62	62	56	*	*	*	*	*	*	57	59
09:00	*	*	*	*	25	31	34	33	*	*	*	*	*	*	30	32
10:00	*	*	*	*	31	25	23	30	*	*	*	*	*	*	27	28
11:00	*	*	*	*	32	30	39	40	*	*	*	*	*	*	36	35
12:00 PM	*	*	*	*	30	46	74	110	*	*	*	*	*	*	52	78
01:00	*	*	*	*	28	45	49	65	*	*	*	*	*	*	38	55
02:00	*	*	*	*	111	140	99	92	*	*	*	*	*	*	105	116
03:00	*	*	*	*	81	126	103	115	*	*	*	*	*	*	92	120
04:00	*	*	*	*	98	78	88	62	*	*	*	*	*	*	93	70
05:00	*	*	*	*	78	70	84	71	*	*	*	*	*	*	81	70
06:00	*	*	*	*	51	42	62	42	*	*	*	*	*	*	56	42
07:00	*	*	*	*	33	46	33	34	*	*	*	*	*	*	33	40
08:00	*	*	*	*	25	39	17	59	*	*	*	*	*	*	21	49
09:00	*	*	*	*	13	20	11	14	*	*	*	*	*	*	12	17
10:00	*	*	*	*	9	5	6	5	*	*	*	*	*	*	8	5
11:00	*	*	*	*	4	5	5	2	*	*	*	*	*	*	4	4
Total	0	0	0	0	902	1090	997	1110	0	0	0	0	0	0	950	1102
Day	0			0	1992		2107		0		0		0		2052	
AM Peak	-	-	-	-	07:00	07:00	07:00	07:00	-	-	-	-	-	-	07:00	07:00
Vol.	-	-	-	-	169	217	177	224	-	-	-	-	-	-	173	220
PM Peak	-	-	-	-	14:00	14:00	15:00	15:00	-	-	-	-	-	-	14:00	15:00
Vol.	-	-	-	-	111	140	103	115	-	-	-	-	-	-	105	120

Comb. Total	0	0	1992	2107	0	0	0	2052
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Old Colony Planning Council
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Community: Hanover
Com#_UR/FC: 122_U6
Recorder #: 22929
Layout: L6 Basic (2')

Station ID:
Site Code: 122
Date Start: 18-Nov-15
Date End: 19-Nov-15
Cedar St, east of Whiting St

Start Time	18-Nov-15 Wed		EB		WB		Combined		19-Nov Thu	EB		WB		Combined	
	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.		A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
12:00	1	6	0	15	1	21			0	14	0	15	0	29	
12:15	0	8	1	12	1	20			0	30	1	62	1	92	
12:30	0	8	1	11	1	19			0	18	0	18	0	36	
12:45	1	8	0	8	1	16			1	12	0	15	1	27	
01:00	0	11	1	5	1	16			0	15	0	15	0	30	
01:15	1	6	2	10	3	16			0	12	0	18	0	30	
01:30	0	6	0	14	0	20			0	14	0	13	0	27	
01:45	0	5	0	16	0	21			2	8	0	19	2	27	
02:00	0	21	0	39	0	60			0	11	1	15	1	26	
02:15	0	41	0	45	0	86			0	35	0	20	0	55	
02:30	0	17	0	34	0	51			0	25	0	29	0	54	
02:45	0	32	1	22	1	54			0	28	0	28	0	56	
03:00	0	23	0	31	0	54			0	21	0	38	0	59	
03:15	0	18	0	29	0	47			0	30	0	31	0	61	
03:30	0	24	0	35	0	59			0	27	1	21	1	48	
03:45	0	16	0	31	0	47			1	25	1	25	2	50	
04:00	0	31	2	17	2	48			0	28	1	20	1	48	
04:15	0	26	1	22	1	48			0	19	2	16	2	35	
04:30	0	16	0	17	0	33			0	18	0	14	0	32	
04:45	1	25	3	22	4	47			1	23	2	12	3	35	
05:00	0	31	1	18	1	49			0	21	3	31	3	52	
05:15	1	17	3	17	4	34			1	21	1	12	2	33	
05:30	0	16	5	18	5	34			1	17	4	15	5	32	
05:45	0	14	5	17	5	31			1	25	9	13	10	38	
06:00	1	12	4	17	5	29			2	16	5	12	7	28	
06:15	0	11	5	3	5	14			1	15	3	5	4	20	
06:30	9	8	15	11	24	19			5	17	8	17	13	34	
06:45	17	20	13	11	30	31			15	14	14	8	29	22	
07:00	50	10	55	13	105	23			51	14	62	9	113	23	
07:15	73	13	115	8	188	21			67	3	111	10	178	13	
07:30	35	5	32	12	67	17			41	9	35	9	76	18	
07:45	11	5	15	13	26	18			18	7	16	6	34	13	
08:00	15	3	17	6	32	9			13	3	12	14	25	17	
08:15	20	5	23	7	43	12			27	4	17	16	44	20	
08:30	10	7	14	16	24	23			8	4	10	12	18	16	
08:45	7	10	8	10	15	20			14	6	17	17	31	23	
09:00	3	7	6	13	9	20			13	1	9	2	22	3	
09:15	5	3	11	4	16	7			6	4	5	3	11	7	
09:30	8	2	7	1	15	3			8	1	13	1	21	2	
09:45	9	1	7	2	16	3			7	5	6	8	13	13	
10:00	8	3	6	2	14	5			7	2	6	1	13	3	
10:15	9	2	6	2	15	4			7	2	6	2	13	4	
10:30	6	3	6	1	12	4			6	0	8	1	14	1	
10:45	8	1	7	0	15	1			3	2	10	1	13	3	
11:00	5	1	5	2	10	3			11	0	12	0	23	0	
11:15	8	1	11	1	19	2			8	2	8	2	16	4	
11:30	9	2	9	1	18	3			10	2	11	0	21	2	
11:45	10	0	5	1	15	1			10	1	9	0	19	1	
Total	341	561	428	662	769	1223			366	631	439	671	805	1302	
Day Total	902		1090		1992				997		1110		2107		
% Total	17.1%	28.2%	21.5%	33.2%					17.4%	29.9%	20.8%	31.8%			
Peak	-	06:45	02:15	07:00	02:00	06:45	02:00	-	07:00	03:15	07:00	02:30	07:00	02:30	
Vol.	-	175	113	217	140	390	251	-	177	110	224	126	401	230	
P.H.F.		0.599	0.689	0.472	0.778	0.519	0.730		0.660	0.917	0.505	0.829	0.563	0.943	

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Community: Hanover
Com#_UR/FC: 122_U6
Recorder #: 22929
Layout: L6 Basic (2')

Station ID:
Site Code: 122
Date Start: 18-Nov-15
Date End: 19-Nov-15
Cedar St, east of Whiting St

Start Time	16-Nov-15 Mon	17-Nov-15 Tue	18-Nov-15 Wed	19-Nov-15 Thu	20-Nov-15 Fri	21-Nov-15 Sat	22-Nov-15 Sun	Week Average
12:00 AM	*	*	4	2	*	*	*	3
01:00	*	*	4	2	*	*	*	3
02:00	*	*	1	1	*	*	*	1
03:00	*	*	0	3	*	*	*	2
04:00	*	*	7	6	*	*	*	6
05:00	*	*	15	20	*	*	*	18
06:00	*	*	64	53	*	*	*	58
07:00	*	*	386	401	*	*	*	394
08:00	*	*	114	118	*	*	*	116
09:00	*	*	56	67	*	*	*	62
10:00	*	*	56	53	*	*	*	54
11:00	*	*	62	79	*	*	*	70
12:00 PM	*	*	76	184	*	*	*	130
01:00	*	*	73	114	*	*	*	94
02:00	*	*	251	191	*	*	*	221
03:00	*	*	207	218	*	*	*	212
04:00	*	*	176	150	*	*	*	163
05:00	*	*	148	155	*	*	*	152
06:00	*	*	93	104	*	*	*	98
07:00	*	*	79	67	*	*	*	73
08:00	*	*	64	76	*	*	*	70
09:00	*	*	33	25	*	*	*	29
10:00	*	*	14	11	*	*	*	12
11:00	*	*	9	7	*	*	*	8
Total	0	0	1992	2107	0	0	0	2049
Percentage	0.0%	0.0%	97.2%	102.8%	0.0%	0.0%	0.0%	
AM Peak	-	-	07:00	07:00	-	-	-	07:00
Vol.	-	-	386	401	-	-	-	394
PM Peak	-	-	14:00	15:00	-	-	-	14:00
Vol.	-	-	251	218	-	-	-	221

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Community: Hanover
Com#_UR/FC: 122_U6
Recorder #: 22929
Layout: L6 Basic (2')

Station ID:
Site Code: 122
Date Start: 18-Nov-15
Date End: 19-Nov-15
Cedar St, east of Whiting St

EB

Start Time	1 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 80	81 85	86 90	91 95	96 999	Total
11/18/15	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
01:00	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:00	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
06:00	8	11	7	1	0	0	0	0	0	0	0	0	0	0	27
07:00	49	80	35	4	1	0	0	0	0	0	0	0	0	0	169
08:00	7	20	18	7	0	0	0	0	0	0	0	0	0	0	52
09:00	9	6	9	1	0	0	0	0	0	0	0	0	0	0	25
10:00	3	18	10	0	0	0	0	0	0	0	0	0	0	0	31
11:00	7	18	5	2	0	0	0	0	0	0	0	0	0	0	32
12 PM	5	16	9	0	0	0	0	0	0	0	0	0	0	0	30
13:00	4	16	7	1	0	0	0	0	0	0	0	0	0	0	28
14:00	17	60	23	11	0	0	0	0	0	0	0	0	0	0	111
15:00	24	35	20	2	0	0	0	0	0	0	0	0	0	0	81
16:00	26	45	23	4	0	0	0	0	0	0	0	0	0	0	98
17:00	22	40	15	1	0	0	0	0	0	0	0	0	0	0	78
18:00	18	18	12	3	0	0	0	0	0	0	0	0	0	0	51
19:00	8	15	8	1	1	0	0	0	0	0	0	0	0	0	33
20:00	11	8	5	1	0	0	0	0	0	0	0	0	0	0	25
21:00	2	5	6	0	0	0	0	0	0	0	0	0	0	0	13
22:00	2	2	3	1	1	0	0	0	0	0	0	0	0	0	9
23:00	0	2	2	0	0	0	0	0	0	0	0	0	0	0	4
Total	227	415	217	40	3	0	0	0	0	0	0	0	0	0	902

Daily

15th Percentile : 20 MPH
50th Percentile : 37 MPH
85th Percentile : 42 MPH
95th Percentile : 44 MPH

Mean Speed(Average) : 35 MPH
10 MPH Pace Speed : 36-45 MPH
Number in Pace : 632
Percent in Pace : 70.1%
Number of Vehicles > 35 MPH : 675
Percent of Vehicles > 35 MPH : 74.8%

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Community: Hanover
Com#_UR/FC: 122_U6
Recorder #: 22929
Layout: L6 Basic (2')

Station ID:
Site Code: 122
Date Start: 18-Nov-15
Date End: 19-Nov-15
Cedar St, east of Whiting St

EB

Start Time	1 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 80	81 85	86 90	91 95	96 999	Total
11/19/15	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
01:00	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
04:00	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:00	2	0	1	0	0	0	0	0	0	0	0	0	0	0	3
06:00	6	11	6	0	0	0	0	0	0	0	0	0	0	0	23
07:00	39	87	42	5	3	0	1	0	0	0	0	0	0	0	177
08:00	11	30	20	1	0	0	0	0	0	0	0	0	0	0	62
09:00	7	15	11	1	0	0	0	0	0	0	0	0	0	0	34
10:00	8	8	6	1	0	0	0	0	0	0	0	0	0	0	23
11:00	18	15	3	3	0	0	0	0	0	0	0	0	0	0	39
12 PM	14	35	23	2	0	0	0	0	0	0	0	0	0	0	74
13:00	6	24	15	4	0	0	0	0	0	0	0	0	0	0	49
14:00	28	38	28	5	0	0	0	0	0	0	0	0	0	0	99
15:00	27	44	31	1	0	0	0	0	0	0	0	0	0	0	103
16:00	25	48	14	0	1	0	0	0	0	0	0	0	0	0	88
17:00	30	36	16	1	1	0	0	0	0	0	0	0	0	0	84
18:00	12	36	12	2	0	0	0	0	0	0	0	0	0	0	62
19:00	8	16	9	0	0	0	0	0	0	0	0	0	0	0	33
20:00	5	7	4	1	0	0	0	0	0	0	0	0	0	0	17
21:00	3	6	2	0	0	0	0	0	0	0	0	0	0	0	11
22:00	0	4	2	0	0	0	0	0	0	0	0	0	0	0	6
23:00	1	1	3	0	0	0	0	0	0	0	0	0	0	0	5
Total	252	463	249	27	5	0	1	0	0	0	0	0	0	0	997

Daily

15th Percentile : 20 MPH
50th Percentile : 37 MPH
85th Percentile : 42 MPH
95th Percentile : 44 MPH

Mean Speed(Average) : 35 MPH
10 MPH Pace Speed : 36-45 MPH
Number in Pace : 712
Percent in Pace : 71.4%
Number of Vehicles > 35 MPH : 745
Percent of Vehicles > 35 MPH : 74.7%

Grand Total	479	878	466	67	8	0	1	0	0	0	0	0	0	0	1899
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Overall

15th Percentile : 20 MPH
50th Percentile : 37 MPH
85th Percentile : 42 MPH
95th Percentile : 44 MPH

Mean Speed(Average) : 35 MPH
10 MPH Pace Speed : 36-45 MPH
Number in Pace : 1344
Percent in Pace : 70.8%
Number of Vehicles > 35 MPH : 1420
Percent of Vehicles > 35 MPH : 74.8%

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Community: Hanover
Com#_UR/FC: 122_U6
Recorder #: 22929
Layout: L6 Basic (2')

Station ID:
Site Code: 122
Date Start: 18-Nov-15
Date End: 19-Nov-15
Cedar St, east of Whiting St

WB

Start Time	1 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 80	81 85	86 90	91 95	96 999	Total
11/18/15	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2
01:00	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3
02:00	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	3	2	1	0	0	0	0	0	0	0	0	0	0	6
05:00	4	2	7	0	1	0	0	0	0	0	0	0	0	0	14
06:00	9	16	9	2	1	0	0	0	0	0	0	0	0	0	37
07:00	60	80	65	9	2	1	0	0	0	0	0	0	0	0	217
08:00	13	17	22	9	1	0	0	0	0	0	0	0	0	0	62
09:00	5	9	14	2	1	0	0	0	0	0	0	0	0	0	31
10:00	2	11	7	5	0	0	0	0	0	0	0	0	0	0	25
11:00	3	12	11	2	2	0	0	0	0	0	0	0	0	0	30
12 PM	8	20	15	3	0	0	0	0	0	0	0	0	0	0	46
13:00	6	22	14	3	0	0	0	0	0	0	0	0	0	0	45
14:00	15	60	54	8	2	1	0	0	0	0	0	0	0	0	140
15:00	30	46	41	6	3	0	0	0	0	0	0	0	0	0	126
16:00	10	39	24	4	0	1	0	0	0	0	0	0	0	0	78
17:00	15	31	24	0	0	0	0	0	0	0	0	0	0	0	70
18:00	8	23	11	0	0	0	0	0	0	0	0	0	0	0	42
19:00	5	16	17	6	1	0	1	0	0	0	0	0	0	0	46
20:00	3	22	11	3	0	0	0	0	0	0	0	0	0	0	39
21:00	6	7	6	1	0	0	0	0	0	0	0	0	0	0	20
22:00	1	1	2	1	0	0	0	0	0	0	0	0	0	0	5
23:00	2	1	1	1	0	0	0	0	0	0	0	0	0	0	5
Total	209	438	358	67	14	3	1	0	0	0	0	0	0	0	1090

Daily

15th Percentile :	27 MPH
50th Percentile :	38 MPH
85th Percentile :	43 MPH
95th Percentile :	47 MPH
Mean Speed(Average) :	37 MPH
10 MPH Pace Speed :	36-45 MPH
Number in Pace :	796
Percent in Pace :	73.0%
Number of Vehicles > 35 MPH :	881
Percent of Vehicles > 35 MPH :	80.8%

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Community: Hanover
Com#_UR/FC: 122_U6
Recorder #: 22929
Layout: L6 Basic (2')

Station ID:
Site Code: 122
Date Start: 18-Nov-15
Date End: 19-Nov-15
Cedar St, east of Whiting St

WB

Start Time	1 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 80	81 85	86 90	91 95	96 999	Total
11/19/15	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
03:00	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
04:00	0	1	3	1	0	0	0	0	0	0	0	0	0	0	5
05:00	1	7	3	6	0	0	0	0	0	0	0	0	0	0	17
06:00	1	14	12	3	0	0	0	0	0	0	0	0	0	0	30
07:00	57	96	60	9	1	0	0	0	0	0	1	0	0	0	224
08:00	7	24	15	9	1	0	0	0	0	0	0	0	0	0	56
09:00	5	10	12	6	0	0	0	0	0	0	0	0	0	0	33
10:00	5	12	11	2	0	0	0	0	0	0	0	0	0	0	30
11:00	9	16	11	4	0	0	0	0	0	0	0	0	0	0	40
12 PM	14	44	36	16	0	0	0	0	0	0	0	0	0	0	110
13:00	8	20	25	10	2	0	0	0	0	0	0	0	0	0	65
14:00	11	35	39	7	0	0	0	0	0	0	0	0	0	0	92
15:00	22	42	43	6	1	1	0	0	0	0	0	0	0	0	115
16:00	5	35	20	2	0	0	0	0	0	0	0	0	0	0	62
17:00	15	42	10	3	1	0	0	0	0	0	0	0	0	0	71
18:00	12	17	10	3	0	0	0	0	0	0	0	0	0	0	42
19:00	3	17	11	2	1	0	0	0	0	0	0	0	0	0	34
20:00	12	24	18	3	2	0	0	0	0	0	0	0	0	0	59
21:00	4	4	5	1	0	0	0	0	0	0	0	0	0	0	14
22:00	0	2	3	0	0	0	0	0	0	0	0	0	0	0	5
23:00	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
Total	192	466	348	93	9	1	0	0	0	0	1	0	0	0	1110

Daily

15th Percentile : 30 MPH
50th Percentile : 38 MPH
85th Percentile : 44 MPH
95th Percentile : 47 MPH

Mean Speed(Average) : 37 MPH
10 MPH Pace Speed : 36-45 MPH
Number in Pace : 814
Percent in Pace : 73.3%
Number of Vehicles > 35 MPH : 918
Percent of Vehicles > 35 MPH : 82.7%

Grand Total	401	904	706	160	23	4	1	0	0	0	1	0	0	0	2200
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Overall

15th Percentile : 28 MPH
50th Percentile : 38 MPH
85th Percentile : 44 MPH
95th Percentile : 47 MPH

Mean Speed(Average) : 37 MPH
10 MPH Pace Speed : 36-45 MPH
Number in Pace : 1610
Percent in Pace : 73.2%
Number of Vehicles > 35 MPH : 1799
Percent of Vehicles > 35 MPH : 81.8%

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Community: Hanover
Com#_UR/FC: 122_U6
Recorder #: 22929
Layout: L6 Basic (2')

Station ID:
Site Code: 122
Date Start: 18-Nov-15
Date End: 19-Nov-15
Cedar St, east of Whiting St

EB, WB

Start Time	1 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 80	81 85	86 90	91 95	96 999	Total
11/18/15	3	0	1	0	0	0	0	0	0	0	0	0	0	0	4
01:00	4	0	0	0	0	0	0	0	0	0	0	0	0	0	4
02:00	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	1	3	2	1	0	0	0	0	0	0	0	0	0	0	7
05:00	5	2	7	0	1	0	0	0	0	0	0	0	0	0	15
06:00	17	27	16	3	1	0	0	0	0	0	0	0	0	0	64
07:00	109	160	100	13	3	1	0	0	0	0	0	0	0	0	386
08:00	20	37	40	16	1	0	0	0	0	0	0	0	0	0	114
09:00	14	15	23	3	1	0	0	0	0	0	0	0	0	0	56
10:00	5	29	17	5	0	0	0	0	0	0	0	0	0	0	56
11:00	10	30	16	4	2	0	0	0	0	0	0	0	0	0	62
12 PM	13	36	24	3	0	0	0	0	0	0	0	0	0	0	76
13:00	10	38	21	4	0	0	0	0	0	0	0	0	0	0	73
14:00	32	120	77	19	2	1	0	0	0	0	0	0	0	0	251
15:00	54	81	61	8	3	0	0	0	0	0	0	0	0	0	207
16:00	36	84	47	8	0	1	0	0	0	0	0	0	0	0	176
17:00	37	71	39	1	0	0	0	0	0	0	0	0	0	0	148
18:00	26	41	23	3	0	0	0	0	0	0	0	0	0	0	93
19:00	13	31	25	7	2	0	1	0	0	0	0	0	0	0	79
20:00	14	30	16	4	0	0	0	0	0	0	0	0	0	0	64
21:00	8	12	12	1	0	0	0	0	0	0	0	0	0	0	33
22:00	3	3	5	2	1	0	0	0	0	0	0	0	0	0	14
23:00	2	3	3	1	0	0	0	0	0	0	0	0	0	0	9
Total	436	853	575	107	17	3	1	0	0	0	0	0	0	0	1992

Daily

15th Percentile :	23 MPH
50th Percentile :	38 MPH
85th Percentile :	43 MPH
95th Percentile :	46 MPH
Mean Speed(Average) :	36 MPH
10 MPH Pace Speed :	36-45 MPH
Number in Pace :	1428
Percent in Pace :	71.7%
Number of Vehicles > 35 MPH :	1556
Percent of Vehicles > 35 MPH :	78.1%

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Community: Hanover
Com#_UR/FC: 122_U6
Recorder #: 22929
Layout: L6 Basic (2')

Station ID:
Site Code: 122
Date Start: 18-Nov-15
Date End: 19-Nov-15
Cedar St, east of Whiting St

EB, WB

Start Time	1 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 80	81 85	86 90	91 95	96 999	Total
11/19/15	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2
01:00	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2
02:00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
03:00	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
04:00	1	1	3	1	0	0	0	0	0	0	0	0	0	0	6
05:00	3	7	4	6	0	0	0	0	0	0	0	0	0	0	20
06:00	7	25	18	3	0	0	0	0	0	0	0	0	0	0	53
07:00	96	183	102	14	4	0	1	0	0	0	1	0	0	0	401
08:00	18	54	35	10	1	0	0	0	0	0	0	0	0	0	118
09:00	12	25	23	7	0	0	0	0	0	0	0	0	0	0	67
10:00	13	20	17	3	0	0	0	0	0	0	0	0	0	0	53
11:00	27	31	14	7	0	0	0	0	0	0	0	0	0	0	79
12 PM	28	79	59	18	0	0	0	0	0	0	0	0	0	0	184
13:00	14	44	40	14	2	0	0	0	0	0	0	0	0	0	114
14:00	39	73	67	12	0	0	0	0	0	0	0	0	0	0	191
15:00	49	86	74	7	1	1	0	0	0	0	0	0	0	0	218
16:00	30	83	34	2	1	0	0	0	0	0	0	0	0	0	150
17:00	45	78	26	4	2	0	0	0	0	0	0	0	0	0	155
18:00	24	53	22	5	0	0	0	0	0	0	0	0	0	0	104
19:00	11	33	20	2	1	0	0	0	0	0	0	0	0	0	67
20:00	17	31	22	4	2	0	0	0	0	0	0	0	0	0	76
21:00	7	10	7	1	0	0	0	0	0	0	0	0	0	0	25
22:00	0	6	5	0	0	0	0	0	0	0	0	0	0	0	11
23:00	1	3	3	0	0	0	0	0	0	0	0	0	0	0	7
Total	444	929	597	120	14	1	1	0	0	0	1	0	0	0	2107

Daily

15th Percentile : 24 MPH
50th Percentile : 38 MPH
85th Percentile : 43 MPH
95th Percentile : 46 MPH

Mean Speed(Average) : 36 MPH
10 MPH Pace Speed : 36-45 MPH
Number in Pace : 1526
Percent in Pace : 72.4%
Number of Vehicles > 35 MPH : 1663
Percent of Vehicles > 35 MPH : 78.9%

Grand Total	880	1782	1172	227	31	4	2	0	0	0	1	0	0	0	4099
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Overall

15th Percentile : 24 MPH
50th Percentile : 38 MPH
85th Percentile : 43 MPH
95th Percentile : 46 MPH

Mean Speed(Average) : 36 MPH
10 MPH Pace Speed : 36-45 MPH
Number in Pace : 2954
Percent in Pace : 72.1%
Number of Vehicles > 35 MPH : 3219
Percent of Vehicles > 35 MPH : 78.5%

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Page 1

Community: Hanover
Com#_UR/FC: 122_U6
Recorder #: 22929
Layout: L6 Basic (2')

Station ID:
Site Code: 122
Date Start: 18-Nov-15
Date End: 19-Nov-15
Cedar St, east of Whiting St

EB

Start Time	Bikes	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total	Truck Total
11/18/15	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0
01:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0
05:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0
06:00	0	18	6	0	3	0	0	0	0	0	0	0	0	27	3
07:00	1	95	56	9	7	0	0	1	0	0	0	0	0	169	17
08:00	0	20	26	3	3	0	0	0	0	0	0	0	0	52	6
09:00	0	16	6	1	2	0	0	0	0	0	0	0	0	25	3
10:00	0	15	12	0	4	0	0	0	0	0	0	0	0	31	4
11:00	0	16	11	0	4	1	0	0	0	0	0	0	0	32	5
12 PM	0	19	9	0	2	0	0	0	0	0	0	0	0	30	2
13:00	0	17	9	0	2	0	0	0	0	0	0	0	0	28	2
14:00	0	66	32	8	5	0	0	0	0	0	0	0	0	111	13
15:00	0	46	31	1	3	0	0	0	0	0	0	0	0	81	4
16:00	1	57	28	0	10	0	0	2	0	0	0	0	0	98	12
17:00	0	53	17	0	6	0	0	2	0	0	0	0	0	78	8
18:00	0	32	18	0	1	0	0	0	0	0	0	0	0	51	1
19:00	1	23	8	0	1	0	0	0	0	0	0	0	0	33	1
20:00	0	18	7	0	0	0	0	0	0	0	0	0	0	25	0
21:00	0	8	4	0	0	1	0	0	0	0	0	0	0	13	1
22:00	1	6	0	0	2	0	0	0	0	0	0	0	0	9	2
23:00	0	3	1	0	0	0	0	0	0	0	0	0	0	4	0
Total	4	533	281	22	55	2	0	5	0	0	0	0	0	902	84
Percent	0.4%	59.1%	31.2%	2.4%	6.1%	0.2%	0.0%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%		9.3%
AM Peak	07:00	07:00	07:00	07:00	07:00	11:00		07:00						07:00	07:00
Vol.	1	95	56	9	7	1		1						169	17
PM Peak	16:00	14:00	14:00	14:00	16:00	21:00		16:00						14:00	14:00
Vol.	1	66	32	8	10	1		2						111	13

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Page 2

Community: Hanover
Com#_UR/FC: 122_U6
Recorder #: 22929
Layout: L6 Basic (2')

Station ID:
Site Code: 122
Date Start: 18-Nov-15
Date End: 19-Nov-15
Cedar St, east of Whiting St

EB

Start Time	Bikes	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total	Truck Total
11/19/15	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0
01:00	0	1	1	0	0	0	0	0	0	0	0	0	0	2	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0
04:00	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0
05:00	0	2	1	0	0	0	0	0	0	0	0	0	0	3	0
06:00	0	15	7	0	0	1	0	0	0	0	0	0	0	23	1
07:00	2	104	55	8	7	1	0	0	0	0	0	0	0	177	16
08:00	1	40	14	4	3	0	0	0	0	0	0	0	0	62	7
09:00	0	16	13	0	3	0	0	2	0	0	0	0	0	34	5
10:00	0	11	7	0	4	0	0	1	0	0	0	0	0	23	5
11:00	0	21	13	0	4	0	0	1	0	0	0	0	0	39	5
12 PM	0	50	23	0	1	0	0	0	0	0	0	0	0	74	1
13:00	1	37	8	0	3	0	0	0	0	0	0	0	0	49	3
14:00	0	61	28	9	1	0	0	0	0	0	0	0	0	99	10
15:00	1	65	35	1	1	0	0	0	0	0	0	0	0	103	2
16:00	0	51	28	0	7	1	0	1	0	0	0	0	0	88	9
17:00	0	60	20	0	4	0	0	0	0	0	0	0	0	84	4
18:00	0	42	15	0	5	0	0	0	0	0	0	0	0	62	5
19:00	0	24	7	0	2	0	0	0	0	0	0	0	0	33	2
20:00	0	10	6	0	1	0	0	0	0	0	0	0	0	17	1
21:00	0	7	3	0	1	0	0	0	0	0	0	0	0	11	1
22:00	0	5	1	0	0	0	0	0	0	0	0	0	0	6	0
23:00	0	5	0	0	0	0	0	0	0	0	0	0	0	5	0
Total	6	628	286	22	47	3	0	5	0	0	0	0	0	997	77
Percent	0.6%	63.0%	28.7%	2.2%	4.7%	0.3%	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%		7.7%
AM Peak Vol.	07:00	07:00	07:00	07:00	07:00	06:00		09:00						07:00	07:00
PM Peak Vol.	13:00	15:00	15:00	14:00	16:00	16:00		16:00						15:00	14:00
Grand Total	10	1161	567	44	102	5	0	10	0	0	0	0	0	1899	161
Percent	0.5%	61.1%	29.9%	2.3%	5.4%	0.3%	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%		8.5%

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Community: Hanover
Com#_UR/FC: 122_U6
Recorder #: 22929
Layout: L6 Basic (2')

Station ID:
Site Code: 122
Date Start: 18-Nov-15
Date End: 19-Nov-15
Cedar St, east of Whiting St

WB

Start Time	Bikes	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total	Truck Total
11/18/15	0	0	2	0	0	0	0	0	0	0	0	0	0	2	0
01:00	0	0	3	0	0	0	0	0	0	0	0	0	0	3	0
02:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	4	1	0	1	0	0	0	0	0	0	0	0	6	1
05:00	0	8	4	0	2	0	0	0	0	0	0	0	0	14	2
06:00	0	22	11	0	4	0	0	0	0	0	0	0	0	37	4
07:00	0	99	95	6	15	1	0	1	0	0	0	0	0	217	23
08:00	0	32	26	0	4	0	0	0	0	0	0	0	0	62	4
09:00	0	14	16	0	1	0	0	0	0	0	0	0	0	31	1
10:00	0	12	8	0	2	1	0	2	0	0	0	0	0	25	5
11:00	0	19	9	0	2	0	0	0	0	0	0	0	0	30	2
12 PM	0	24	15	0	7	0	0	0	0	0	0	0	0	46	7
13:00	0	20	18	1	4	0	0	2	0	0	0	0	0	45	7
14:00	0	70	62	1	7	0	0	0	0	0	0	0	0	140	8
15:00	0	69	48	4	4	0	0	1	0	0	0	0	0	126	9
16:00	2	36	33	0	7	0	0	0	0	0	0	0	0	78	7
17:00	0	39	24	0	7	0	0	0	0	0	0	0	0	70	7
18:00	0	26	16	0	0	0	0	0	0	0	0	0	0	42	0
19:00	0	26	15	0	5	0	0	0	0	0	0	0	0	46	5
20:00	0	19	17	0	3	0	0	0	0	0	0	0	0	39	3
21:00	0	8	10	0	2	0	0	0	0	0	0	0	0	20	2
22:00	0	4	1	0	0	0	0	0	0	0	0	0	0	5	0
23:00	0	5	0	0	0	0	0	0	0	0	0	0	0	5	0
Total	2	557	434	12	77	2	0	6	0	0	0	0	0	1090	97
Percent	0.2%	51.1%	39.8%	1.1%	7.1%	0.2%	0.0%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%		8.9%
AM Peak Vol.		07:00	07:00	07:00	07:00	07:00		10:00						07:00	07:00
		99	95	6	15	1		2						217	23
PM Peak Vol.	16:00	14:00	14:00	15:00	12:00			13:00						14:00	15:00
	2	70	62	4	7			2						140	9

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Community: Hanover
Com#_UR/FC: 122_U6
Recorder #: 22929
Layout: L6 Basic (2')

Station ID:
Site Code: 122
Date Start: 18-Nov-15
Date End: 19-Nov-15
Cedar St, east of Whiting St

WB

Start Time	Bikes	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total	Truck Total
11/19/15	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0
03:00	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0
04:00	0	3	2	0	0	0	0	0	0	0	0	0	0	5	0
05:00	0	8	5	0	4	0	0	0	0	0	0	0	0	17	4
06:00	0	17	11	0	2	0	0	0	0	0	0	0	0	30	2
07:00	0	104	101	7	11	1	0	0	0	0	0	0	0	224	19
08:00	0	31	20	0	4	0	0	1	0	0	0	0	0	56	5
09:00	0	15	15	0	2	0	0	1	0	0	0	0	0	33	3
10:00	0	13	13	0	3	0	0	1	0	0	0	0	0	30	4
11:00	0	25	14	0	1	0	0	0	0	0	0	0	0	40	1
12 PM	0	60	39	2	9	0	0	0	0	0	0	0	0	110	11
13:00	1	36	22	0	4	1	0	1	0	0	0	0	0	65	6
14:00	0	52	36	0	4	0	0	0	0	0	0	0	0	92	4
15:00	0	55	49	4	7	0	0	0	0	0	0	0	0	115	11
16:00	0	36	18	0	8	0	0	0	0	0	0	0	0	62	8
17:00	0	31	30	0	9	1	0	0	0	0	0	0	0	71	10
18:00	0	30	9	0	3	0	0	0	0	0	0	0	0	42	3
19:00	0	19	14	0	1	0	0	0	0	0	0	0	0	34	1
20:00	0	41	14	0	4	0	0	0	0	0	0	0	0	59	4
21:00	0	8	5	0	1	0	0	0	0	0	0	0	0	14	1
22:00	0	3	2	0	0	0	0	0	0	0	0	0	0	5	0
23:00	0	0	0	0	2	0	0	0	0	0	0	0	0	2	2
Total	1	590	420	13	79	3	0	4	0	0	0	0	0	1110	99
Percent	0.1%	53.2%	37.8%	1.2%	7.1%	0.3%	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%		8.9%
AM Peak		07:00	07:00	07:00	07:00	07:00		08:00						07:00	07:00
Vol.		104	101	7	11	1		1						224	19
PM Peak	13:00	12:00	15:00	15:00	12:00	13:00		13:00						15:00	12:00
Vol.	1	60	49	4	9	1		1						115	11
Grand Total	3	1147	854	25	156	5	0	10	0	0	0	0	0	2200	196
Percent	0.1%	52.1%	38.8%	1.1%	7.1%	0.2%	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%		8.9%

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Community: Hanover
Com#_UR/FC: 122_U6
Recorder #: 22929
Layout: L6 Basic (2')

Station ID:
Site Code: 122
Date Start: 18-Nov-15
Date End: 19-Nov-15
Cedar St, east of Whiting St

EB, WB

Start Time	Bikes	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total	Truck Total
11/18/15	0	2	2	0	0	0	0	0	0	0	0	0	0	4	0
01:00	0	1	3	0	0	0	0	0	0	0	0	0	0	4	0
02:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	5	1	0	1	0	0	0	0	0	0	0	0	7	1
05:00	0	9	4	0	2	0	0	0	0	0	0	0	0	15	2
06:00	0	40	17	0	7	0	0	0	0	0	0	0	0	64	7
07:00	1	194	151	15	22	1	0	2	0	0	0	0	0	386	40
08:00	0	52	52	3	7	0	0	0	0	0	0	0	0	114	10
09:00	0	30	22	1	3	0	0	0	0	0	0	0	0	56	4
10:00	0	27	20	0	6	1	0	2	0	0	0	0	0	56	9
11:00	0	35	20	0	6	1	0	0	0	0	0	0	0	62	7
12 PM	0	43	24	0	9	0	0	0	0	0	0	0	0	76	9
13:00	0	37	27	1	6	0	0	2	0	0	0	0	0	73	9
14:00	0	136	94	9	12	0	0	0	0	0	0	0	0	251	21
15:00	0	115	79	5	7	0	0	1	0	0	0	0	0	207	13
16:00	3	93	61	0	17	0	0	2	0	0	0	0	0	176	19
17:00	0	92	41	0	13	0	0	2	0	0	0	0	0	148	15
18:00	0	58	34	0	1	0	0	0	0	0	0	0	0	93	1
19:00	1	49	23	0	6	0	0	0	0	0	0	0	0	79	6
20:00	0	37	24	0	3	0	0	0	0	0	0	0	0	64	3
21:00	0	16	14	0	2	1	0	0	0	0	0	0	0	33	3
22:00	1	10	1	0	2	0	0	0	0	0	0	0	0	14	2
23:00	0	8	1	0	0	0	0	0	0	0	0	0	0	9	0
Total	6	1090	715	34	132	4	0	11	0	0	0	0	0	1992	181
Percent	0.3%	54.7%	35.9%	1.7%	6.6%	0.2%	0.0%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%		9.1%
AM Peak	07:00	07:00	07:00	07:00	07:00	07:00		07:00						07:00	07:00
Vol.	1	194	151	15	22	1		2						386	40
PM Peak	16:00	14:00	14:00	14:00	16:00	21:00		13:00						14:00	14:00
Vol.	3	136	94	9	17	1		2						251	21

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Community: Hanover
Com#_UR/FC: 122_U6
Recorder #: 22929
Layout: L6 Basic (2')

Station ID:
Site Code: 122
Date Start: 18-Nov-15
Date End: 19-Nov-15
Cedar St, east of Whiting St

EB, WB










Start Time	Bikes	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total	Truck Total
11/19/15	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0
01:00	0	1	1	0	0	0	0	0	0	0	0	0	0	2	0
02:00	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0
03:00	0	2	1	0	0	0	0	0	0	0	0	0	0	3	0
04:00	1	3	2	0	0	0	0	0	0	0	0	0	0	6	0
05:00	0	10	6	0	4	0	0	0	0	0	0	0	0	20	4
06:00	0	32	18	0	2	1	0	0	0	0	0	0	0	53	3
07:00	2	208	156	15	18	2	0	0	0	0	0	0	0	401	35
08:00	1	71	34	4	7	0	0	1	0	0	0	0	0	118	12
09:00	0	31	28	0	5	0	0	3	0	0	0	0	0	67	8
10:00	0	24	20	0	7	0	0	2	0	0	0	0	0	53	9
11:00	0	46	27	0	5	0	0	1	0	0	0	0	0	79	6
12 PM	0	110	62	2	10	0	0	0	0	0	0	0	0	184	12
13:00	2	73	30	0	7	1	0	1	0	0	0	0	0	114	9
14:00	0	113	64	9	5	0	0	0	0	0	0	0	0	191	14
15:00	1	120	84	5	8	0	0	0	0	0	0	0	0	218	13
16:00	0	87	46	0	15	1	0	1	0	0	0	0	0	150	17
17:00	0	91	50	0	13	1	0	0	0	0	0	0	0	155	14
18:00	0	72	24	0	8	0	0	0	0	0	0	0	0	104	8
19:00	0	43	21	0	3	0	0	0	0	0	0	0	0	67	3
20:00	0	51	20	0	5	0	0	0	0	0	0	0	0	76	5
21:00	0	15	8	0	2	0	0	0	0	0	0	0	0	25	2
22:00	0	8	3	0	0	0	0	0	0	0	0	0	0	11	0
23:00	0	5	0	0	2	0	0	0	0	0	0	0	0	7	2
Total	7	1218	706	35	126	6	0	9	0	0	0	0	0	2107	176
Percent	0.3%	57.8%	33.5%	1.7%	6.0%	0.3%	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%		8.4%
AM Peak	07:00	07:00	07:00	07:00	07:00	07:00		09:00						07:00	07:00
Vol.	2	208	156	15	18	2		3						401	35
PM Peak	13:00	15:00	15:00	14:00	16:00	13:00		13:00						15:00	16:00
Vol.	2	120	84	9	15	1		1						218	17
Grand Total	13	2308	1421	69	258	10	0	20	0	0	0	0	0	4099	357
Percent	0.3%	56.3%	34.7%	1.7%	6.3%	0.2%	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%		8.7%

HCM Unsignalized Intersection Capacity Analysis

3: Pleasant Street/Whiting Street & Cedar Street

PM Peak Hour

2/29/2016










						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	8	106	220	5	77	508
Future Volume (Veh/h)	8	106	220	5	77	508
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.55	0.55	0.96	0.96	0.91	0.91
Hourly flow rate (vph)	15	193	229	5	85	558
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	960	232			234	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	960	232			234	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	94	76			94	
cM capacity (veh/h)	269	813			1345	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	208	234	643			
Volume Left	15	0	85			
Volume Right	193	5	0			
cSH	709	1700	1345			
Volume to Capacity	0.29	0.14	0.06			
Queue Length 95th (ft)	31	0	5			
Control Delay (s)	12.2	0.0	1.7			
Lane LOS	B		A			
Approach Delay (s)	12.2	0.0	1.7			
Approach LOS	B					
Intersection Summary						
Average Delay		3.3				
Intersection Capacity Utilization		59.9%		ICU Level of Service		B
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

3: Pleasant Street/Whiting Street & Cedar Street

AM Peak Hour

2/29/2016

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	6	236	514	9	181	184
Future Volume (Veh/h)	6	236	514	9	181	184
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.50	0.50	0.79	0.79	0.77	0.77
Hourly flow rate (vph)	12	472	651	11	235	239
Pedestrians	2		2			2
Lane Width (ft)	12.0		12.0			12.0
Walking Speed (ft/s)	3.5		3.5			3.5
Percent Blockage	0		0			0
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1370	660			664	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1370	660			664	
tC, single (s)	6.4	6.2			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.3	
p0 queue free %	90	0			74	
cM capacity (veh/h)	120	459			900	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	484	662	474			
Volume Left	12	0	235			
Volume Right	472	11	0			
cSH	429	1700	900			
Volume to Capacity	1.13	0.39	0.26			
Queue Length 95th (ft)	433	0	26			
Control Delay (s)	113.5	0.0	6.8			
Lane LOS	F		A			
Approach Delay (s)	113.5	0.0	6.8			
Approach LOS	F					
Intersection Summary						
Average Delay		35.9				
Intersection Capacity Utilization		72.5%		ICU Level of Service		C
Analysis Period (min)		15				

MUTCD Traffic Signal Warrant 7 Crash Experience 2014 Volumes
 5 Cross movement Crashes in 2014 (Meets Criteria B)
 7 Cross Movement Crashes in 2013 (Meets Criteria B)

Section 4C.08 Warrant 7, Crash Experience

Support:

1 The Crash Experience signal warrant conditions are intended for application where the severity and frequency of crashes are the principal reasons to consider installing a traffic control signal.

Standard:

2 The need for a traffic control signal shall be considered if an engineering study finds that all of the following criteria are met:

A. Adequate trial of alternatives with satisfactory observance and enforcement has failed to reduce the crash frequency; and

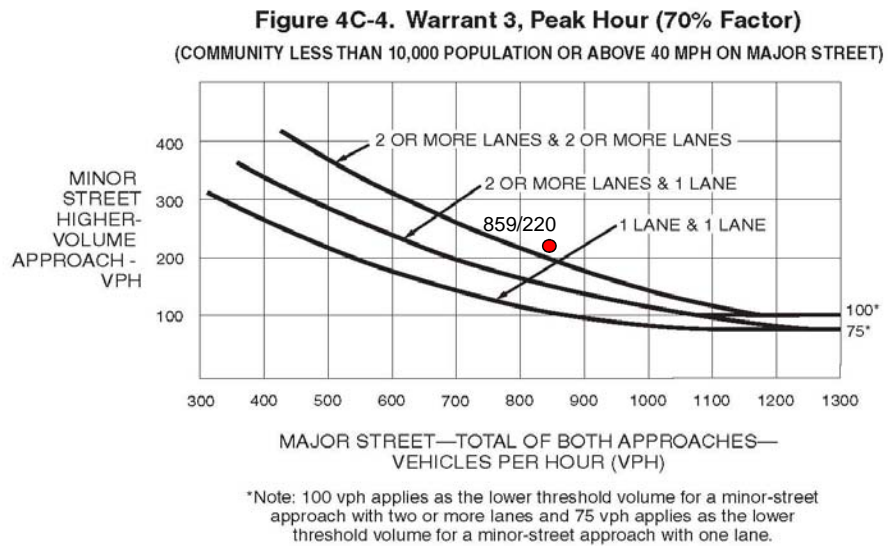
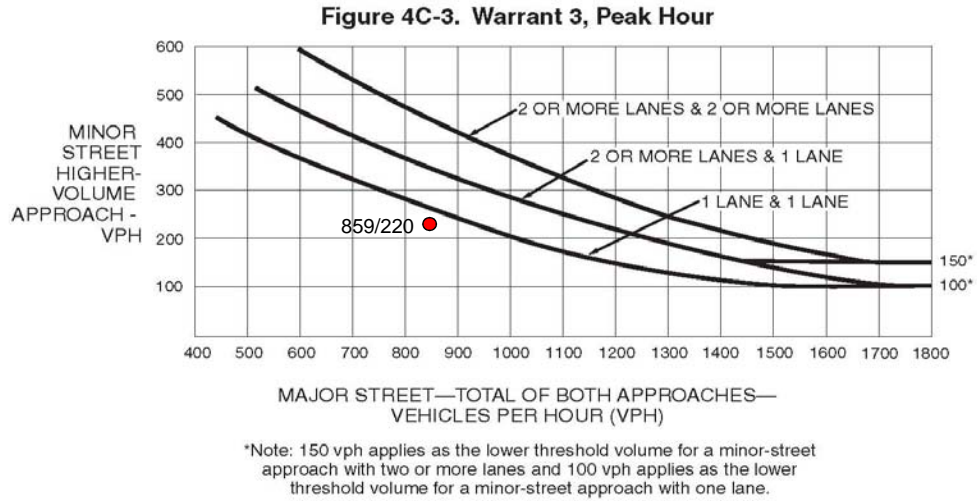
B. Five or more reported crashes, of types susceptible to correction by a traffic control signal, have occurred within a 12-month period, each crash involving personal injury or property damage apparently exceeding the applicable requirements for a reportable crash; and

C. For each of any 8 hours of an average day, the vehicles per hour (vph) given in both of the 80% columns of Condition A in Table 4C-1 (see Section 4C.02), or the vph in both of the 80 percent columns of Condition B in Table 4C-1 exists on the major-street and the higher-volume minor-street approach, respectively, to the intersection, or the volume of pedestrian traffic is not less than 80 percent of the requirements specified in the Pedestrian Volume warrant. These major-street and minor-street volumes shall be for the same 8 hours. On the minor street, the higher volume shall not be required to be on the same approach during each of the 8 hours

Threshold: Total Major must be at least 400, total minor must be at least 120 for 8 hours

Time	Pleasant Street			Cedar Street			70 percent requirement
	Whiting Street Major Street entering	Entering major street	Total Major	minor entering	Total minor		
12:00 AM	22	8	30	2	0	2	not satisfied
1:00	16	4	20	2	0	2	not satisfied
2:00	6	8	14	1	0	1	not satisfied
3:00	6	11	17	1	0	1	not satisfied
4:00	12	84	96	6	0	6	not satisfied
5:00	41	264	305	16	0	16	not satisfied
6:00	104	350	454	34	0	34	not satisfied
7:00	326	533	859	220	0	220	satisfied
8:00	199	359	558	59	0	59	not satisfied
9:00	158	250	408	32	0	32	not satisfied
10:00	172	190	362	28	0	28	not satisfied
11:00	161	174	335	35	0	35	not satisfied
12:00 PM	217	168	385	78	0	78	not satisfied
1:00	238	184	422	55	0	55	not satisfied
2:00	396	229	625	116	0	116	not satisfied
3:00	538	274	812	120	0	120	satisfied
4:00	561	238	799	70	0	70	not satisfied
5:00	590	214	804	70	0	70	not satisfied
6:00	360	151	511	42	0	42	not satisfied
7:00	230	96	326	40	0	40	not satisfied
8:00	168	67	235	49	0	49	not satisfied
9:00	130	45	175	17	0	17	not satisfied
10:00	84	34	118	5	0	5	not satisfied
11:00	56	18	74	4	0	4	not satisfied
Total	4791	3953	8744	1102	0	1102	

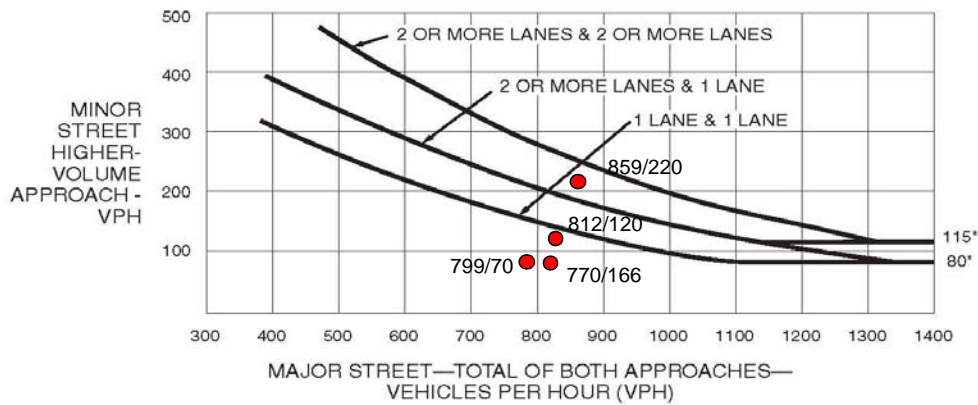
THRESHOLD NOT MET FOR CRITERIA A, B, C



If the posted or statutory speed limit or the 85th-percentile speed on the major street exceeds 40 mph, or if the intersection lies within the built-up area of an isolated community having a population of less than 10,000, Figure 4C-4 may be used in place of Figure 4C-3 to evaluate the criteria in the second category of the Standard.

Population exceeds 10,000, and the 85th percentile does not exceed 40 MPH

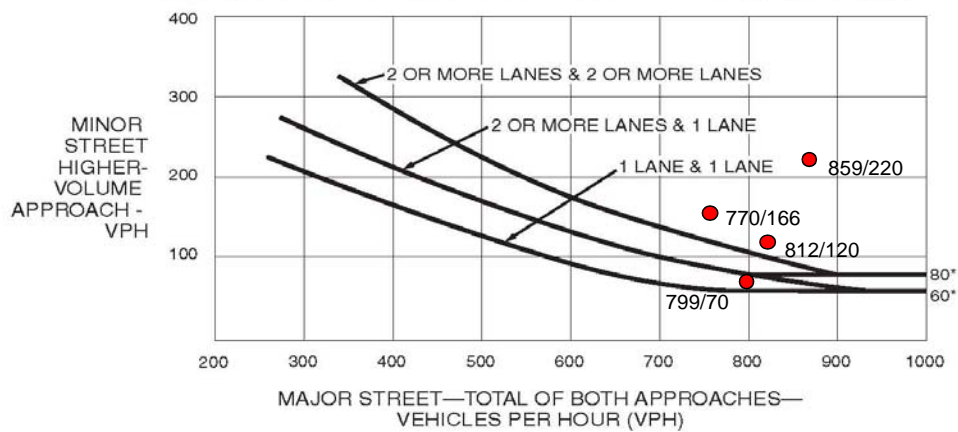
Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 80 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor-street approach with one lane.

MUTCD Traffic Signal Warrant 1 Minimum Vehicular Volume - 2015 Traffic Volumes							
TRAFFIC SIGNAL WARRANT ONE Minimum Vehicular Volume							
Threshold: Total Major must be at least 500, total minor must be at least 150 for 8 hours							
If the 85th percentile is above 40 mph, then use 70 percent of the values meet the requirement							
(350 major street-105 minor street)							
Time	Whiting Street Major Street entering SB	Pleasant Street Entering major street NB	Total Major	Cedar Street minor entering WB		Total minor	70 percent requirement
12:00 AM	22	8	30	2	0	2	not satisfied
1:00	16	4	20	2	0	2	not satisfied
2:00	6	8	14	1	0	1	not satisfied
3:00	6	11	17	1	0	1	not satisfied
4:00	12	84	96	6	0	6	not satisfied
5:00	41	264	305	16	0	16	not satisfied
6:00	104	350	454	34	0	34	not satisfied
7:00	326	533	859	220	0	220	satisfied
8:00	199	359	558	59	0	59	not satisfied
9:00	158	250	408	32	0	32	not satisfied
10:00	172	190	362	28	0	28	not satisfied
11:00	161	174	335	35	0	35	not satisfied
12:00 PM	217	168	385	78	0	78	not satisfied
1:00	238	184	422	55	0	55	not satisfied
2:00	396	229	625	116	0	116	not satisfied
3:00	538	274	812	120	0	120	not satisfied
4:00	561	238	799	70	0	70	not satisfied
5:00	590	214	804	70	0	70	not satisfied
6:00	360	151	511	42	0	42	not satisfied
7:00	230	96	326	40	0	40	not satisfied
8:00	168	67	235	49	0	49	not satisfied
9:00	130	45	175	17	0	17	not satisfied
10:00	84	34	118	5	0	5	not satisfied
11:00	56	18	74	4	0	4	not satisfied
Total	4791	3953	8744	1102	0	1102	
THRESHOLD NOT MET FOR 8 HOURS							
70 % THRESHOLD NOT MET FOR 8 HOURS							
				Population 13,879			

	MUTCD Multi-Way Stop Warrant for 2015 traffic volumes							
Threshold:	Total Major must be at least 300, total minor must be at least 200 for 8 hours							
If the 85th percentile is above 40 mph, then use 70 percent of the values meet the requirement								
(210 major street-140 minor street)								
	Whiting Street Major Street entering SB	Pleasant Street Entering major street NB		Cedar Street minor entering WB		Total minor		70 percent requirement
Time			Total Major					
12:00 AM	22	8	30	2	0	2	not satisfied	not satisfied
1:00	16	4	20	2	0	2	not satisfied	not satisfied
2:00	6	8	14	1	0	1	not satisfied	not satisfied
3:00	6	11	17	1	0	1	not satisfied	not satisfied
4:00	12	84	96	6	0	6	not satisfied	not satisfied
5:00	41	264	305	16	0	16	not satisfied	not satisfied
6:00	104	350	454	34	0	34	not satisfied	not satisfied
7:00	326	533	859	220	0	220	not satisfied	satisfied
8:00	199	359	558	59	0	59	not satisfied	not satisfied
9:00	158	250	408	32	0	32	not satisfied	not satisfied
10:00	172	190	362	28	0	28	not satisfied	not satisfied
11:00	161	174	335	35	0	35	not satisfied	not satisfied
12:00 PM	217	168	385	78	0	78	not satisfied	not satisfied
1:00	238	184	422	55	0	55	not satisfied	not satisfied
2:00	396	229	625	116	0	116	not satisfied	not satisfied
3:00	538	274	812	120	0	120	not satisfied	not satisfied
4:00	561	238	799	70	0	70	not satisfied	not satisfied
5:00	590	214	804	70	0	70	not satisfied	not satisfied
6:00	360	151	511	42	0	42	not satisfied	not satisfied
7:00	230	96	326	40	0	40	not satisfied	not satisfied
8:00	168	67	235	49	0	49	not satisfied	not satisfied
9:00	130	45	175	17	0	17	not satisfied	not satisfied
10:00	84	34	118	5	0	5	not satisfied	not satisfied
11:00	56	18	74	4	0	4	not satisfied	not satisfied
Total	4791	3953	8744	1102	0	1102		
MUTCD THRESHOLD MET FOR MULTI-WAY STOP								
NOT SATISFIED FOR ALL WAY STOP SIGN								
70 % NOT SATISFIED FOR ALL WAY STOP SIGN								

Masshighway

CRASH RATE WORKSHEET

CITY/TOWN : Hanover COUNT DATE : 2015 **MHD USE ONLY**

DISTRICT : 5 UNSIGNALIZED : X SIGNALIZED : Source #

~ INTERSECTION DATA ~

MAJOR STREET : Whiting Street/Pleasant Street

RIN #

MINOR STREET(S) : Cedar Street

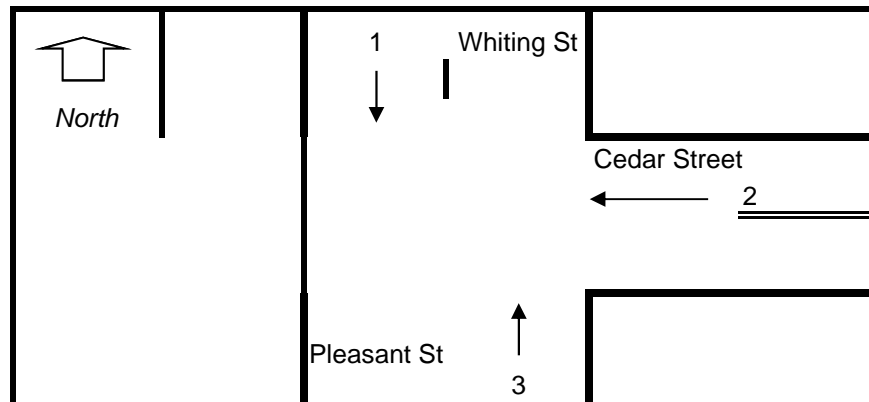
RIN #

RIN #

RIN #

RIN #

**INTERSECTION
DIAGRAM**
(Label Approaches)



INTERSECTION
REF #

Peak Hour Volumes

APPROACH :	1	2	3	4	5	6
DIRECTION :	SB	WB	NB	EB	Total	
VOLUMES (AM/PM) :	585	114	225	0	924	

" K " FACTOR : 0.09 APPROACH ADT : 10,267 ADT = TOTAL VOL/"K" FACT.

TOTAL # OF ACCIDENTS : 3 # OF YEARS : 4 AVERAGE # OF ACCIDENTS (A) : 0.75

CRASH RATE CALCULATION : 0.200 RATE = $\left(\frac{A * 1,000,000}{ADT * 365} \right)$ (

Comments :

District 5 Average: Signalized	0.76	Statewide Average: Signalized	0.8
Unsignalized	0.58	Unsignalized	0.60

Percentage Difference					
District 5 Average:	Signalized	-73.67%	Statewide Average:	Signalized	-74.98%
	Unsignalized	-65.49%		Unsignalized	-66.64%

Low-Cost Safety Enhancements for Stop-Controlled and Signalized Intersections



2. STOP-CONTROLLED INTERSECTIONS

Signing and Pavement Marking Enhancements

Crash Problem

The major crash type at stop-controlled intersections is a right angle crash involving a vehicle entering the intersection from the stop approach and a vehicle on the through approach. In these crashes, most of the vehicles on the stop approach stop or at least slow down to under 10 mph before pulling out. However, many drivers involved in these crashes make poor decisions regarding the available safe gaps between vehicles on the through road. Inattentive or distracted drivers, speeding, and physical limitations of the intersection contribute to future crash potential.

Countermeasures

The set of low-cost countermeasures for stop-controlled intersections is designed to increase drivers' alertness to the presence of the intersection and reduce potential conflicts with other entering vehicles. These countermeasures are primarily intended for deployment at stop-controlled intersections with either single through lanes or multiple undivided through lanes. Countermeasures have been classified as basic or supplemental. Basic countermeasures are those that are usually very low in unit cost and effective in terms of reducing future crash potential and should be considered at all intersections having crashes above a defined crash threshold. Supplemental countermeasures are targeted to intersections with crash levels considerably above the crash threshold or the intersection has specific types of crashes that the countermeasure can address.

Basic Countermeasures

The basic set of countermeasures should be considered as a package of minor improvements consisting of all of the following:

Low-Cost Countermeasures for the Through Approach

- Doubled up (left and right), oversize advance intersection warning signs, with street name sign plaques.

Low-Cost Countermeasures for the Stop Approach

- Doubled up (left and right), oversize advance "Stop Ahead" intersection warning signs.
- Doubled up (left and right), oversize STOP signs.
- Installation of a minimum 6 ft. wide raised splitter island on the stop approach (if no pavement widening is required.).

- Properly placed stop bar.
- Removal of any foliage or parking that limits sight distance.
- Double arrow warning sign at stem of T-intersections.

Supplemental Countermeasures—Intersections with Higher Crash Frequencies

In addition to the basic package of countermeasures, additional individual countermeasures can be considered based upon higher frequencies of crashes beyond the crash threshold for basic countermeasures or at intersections that have crash types that the countermeasure can address.

- Installation of a minimum 6 ft. wide raised splitter island on stop approach which requires pavement widening. (See FHWA-HRT-08-063 for further design and performance information.).
- Either a) flashing solar-powered LED beacons on advance intersection warning signs and STOP signs or b) flashing overhead intersection beacons.
- Dynamic warning sign to advise through traffic that a stopped vehicle is present and may enter the intersection.
- Transverse rumble strips across the stop approach lanes in rural areas where noise is not a concern and running STOP signs is a problem. (Use "Stop Ahead" pavement markings if noise is a concern.).
- Dynamic warning sign to advise high-speed approach traffic that a stopped condition is ahead; use this countermeasure when vehicles running the STOP sign is a problem.
- Extension of the through edge line using short skip pattern may assist drivers to stop at an optimum point; this countermeasure is used on intersections with very wide throats in which stopped drivers have difficulty stopping at the correct location.
- Reflective stripes on sign posts may be used on signs with degraded conspicuity due to sign clutter or competing background features to increase attention to the sign, particularly at night.

Supplemental countermeasures should be considered in addition to the basic set of countermeasures and not in lieu of the basic countermeasures on those intersections with higher crash frequencies or those that possess certain physical characteristics that the countermeasure is designed to impact.

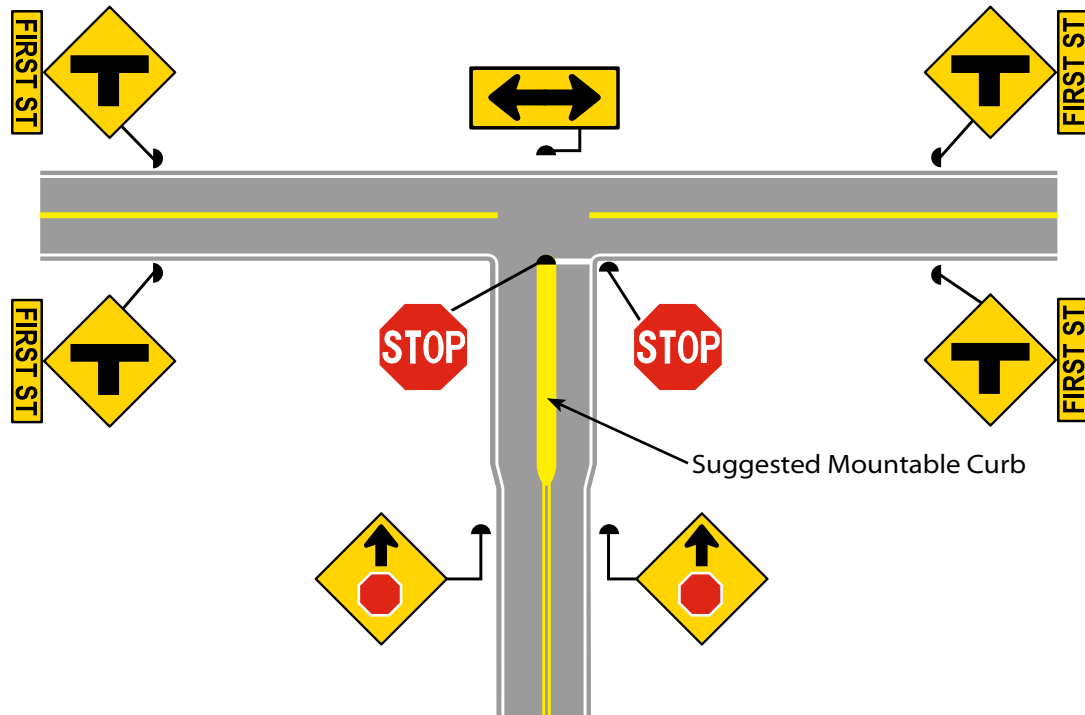


Figure 1: Examples of Basic Low-Cost Countermeasures for Stop-Controlled Intersections – Double Up Oversize Warning Signs, Double STOP Signs, Traffic Island on Stop Approach (if feasible), Street Name Signs, Stop Bars, and Double Warning Arrow at the Stem of T-Intersections

Countermeasure Crash Reduction Factors, Threshold Levels, Additional Implementation Factors, and Estimated Cost Ranges

It is assumed that the existing traffic control devices at intersections under consideration for improvement are MUTCD compliant and usually consist of a single standard size intersection warning sign for each through direction of travel and “Stop Ahead” and STOP signs on the stop approaches. Even with these signs a high frequency of crashes may exist at the intersection. Applying the complete set of sign and markings, defined previously under “Basic Countermeasures,” to the intersection is estimated to reduce future crashes by 30 percent (crash reduction factor (CRF) of 40). This estimate was developed by an expert intersection safety panel using past effectiveness research findings in combination with engineering judgment.

Crash reduction factors for supplemental stop-controlled intersection countermeasures have been taken from the *FHWA Toolbox of Countermeasures and Their Potential Effectiveness to Make Intersections Safer* and other FHWA publications. The CRFs, typical crash thresholds for application, additional implementation factors, and estimated cost ranges for each of the countermeasures are provided in Table 1.

Countermeasure	Crash Reduction Factor	Typical Urban Crash Threshold	Typical Rural Crash Threshold	Additional Implementation Factors	Typical Implementation Cost Range per Intersection
Basic set of sign and marking improvements	40%	10 crashes in 5 years	4-5 crashes in 5 years	None	\$5,000 to \$8,000
Installation of a 6 ft. or greater raised divider on stop approach (installed separately as a supplemental countermeasure)	15%	20 crashes in 5 years	10 crashes in 5 years	Widening required to install island	\$25,000 to \$75,000 (pavement widening but no ROW required)
Either a) flashing solar powered LED beacons on advance intersection warning signs and STOP signs or b) flashing overhead intersection beacons	10% (13% for right angle crashes)	15-20 crashes in 5 years	8-10 crashes in 5 years	None	\$5,000 to \$15,000
Dynamic warning sign which advises through traffic that a stopped vehicle is at the intersection and may enter the intersection	Unknown	20-30 crashes in 5 years	10-20 crashes in 5 years	5 angle crashes in 5 years and inadequate sight distance from the stop approach	\$10,000 to \$25,000
Transverse rumble strips across the stop approach lanes in rural areas where noise is not a concern and running STOP signs is a problem ("Stop Ahead" pavement marking legend if noise is a concern)	28% (transverse rumble strips) 15% ("Stop Ahead" pavement markings)	5 running STOP sign crashes in 5 years	3 running STOP sign crashes in 5 years	Inadequate stopping sight distance on the stop approach	\$3,000 to \$10,000
Dynamic warning sign on the stop approach to advise high-speed approach traffic that a stopped condition is ahead	Unknown	8 running STOP sign crashes in 5 years	5 running STOP sign crashes in 5 years	Inadequate stopping sight distance on the stop approach	\$10,000 to \$25,000
Extension of the through edge line using short skip pattern may assist drivers to stop at the optimum point	Unknown	10 crashes in 5 years	5 crashes in 5 years	Wide throat and observed vehicles stopping too far back from the intersection	Less than \$1,000
Reflective stripes on sign posts may increase attention to the sign, particularly at night	Unknown	10 crashes in 5 years	5 crashes in 5 years	Sign visibility or conspicuity significantly degraded particularly at night	Less than \$1,000

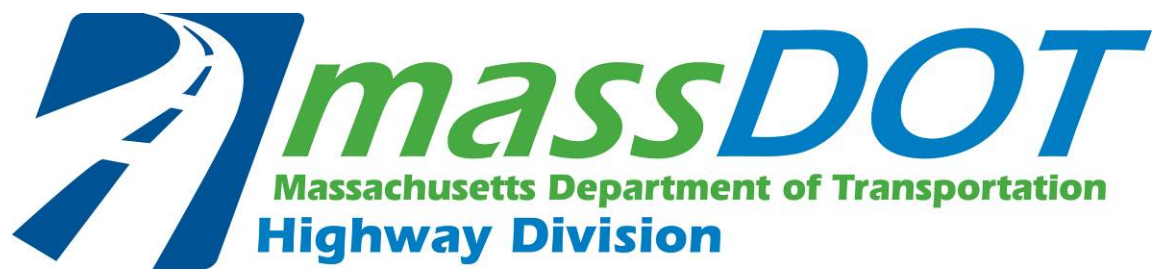
Table 1: Crash Reduction Factors, Typical Crash Thresholds, Additional Application Factors, and Estimated Implementation Cost Ranges for Countermeasures at Stop-Controlled Intersections

The entire set of basic signing and marking countermeasures should be the primary improvement considered at stop-controlled intersections with a high frequency of crashes. One exception is stop-controlled intersections on divided multi-lane highways in which J-turn treatments (see next section) are the preferred countermeasure.

Additional supplemental countermeasures beyond the basic sign and marking enhancements should be considered at those intersections which either have much higher levels of crashes beyond the basic sign and marking crash thresholds

or have other intersection crash concerns identified in Table 1 that may be addressed by a given countermeasure.

The crash threshold levels in Table 1 may be adjusted to reflect the following: entering traffic volumes (low volume intersections may have a lower threshold); and/or differences in severity rates (e.g., fatalities per 100 crashes) between urban and rural stop-controlled intersections. Refer to the Systematic Approach section of this document for further information on adjusting crash thresholds.



PROCEDURES FOR SPEED ZONING
ON
STATE AND MUNICIPAL ROADWAYS
2012

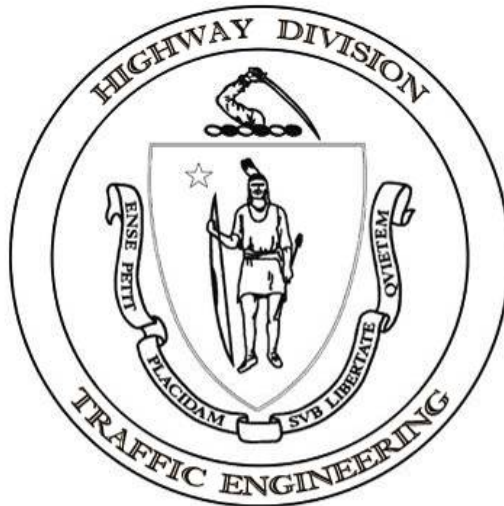


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SPEED ZONING ON MASSACHUSETTS HIGHWAYS

Speed regulation is, and always has been, a subject of both interest and controversy to almost everyone. Whether we drive or not, most of us are directly affected by the speed of motor vehicles. There has always been a small segment of motorists who drive in a careless and reckless manner. This leads to demands from all sides that definite rules must be established regarding the operation of the motor vehicle and that a special effort be made to control those motorists who do not conform with the vast majority when governing their vehicular speeds.

It should be understood that it has been the consistent objective of the Massachusetts Department of Transportation, Highway Division (MassDOT) over the years to provide means to promote safe and efficient traffic flow in the Commonwealth. The goal of our Speed Limit Traffic Control Program has always been to provide appropriate and enforceable speed limits on all paved streets and highways within the commonwealth in the best interest of the motoring public's right to use a roadway in a reasonable and proper manner.

Speed limits shall be established only after an engineering and traffic investigation has been conducted in compliance with established traffic engineering practices. The ideal speed limit is both acceptable to the prudent driver and enforceable by our police departments. Gravel and unpaved roadways are not typically speed zoned due to the fact that it is impossible to establish a consistent road surface and the conditions on such roads tend to change over a relatively short period of time.

MASSACHUSETTS SPEED LAW

Speed laws in Massachusetts are based on Chapter 90, Sections 17, 17A and 18 of the Massachusetts General Laws. (Appendix 1)

Chapter 90, Section 17 governs the speed of motor vehicles on unposted roadways. The speed limits on roadways that fall into this category are often referred to as “prima facie” speed limits. The present prima facie speed limits according to Chapter 90, Section 17 are condensed below

.....it shall be prima facie evidence of a rate of speed greater than is reasonable and proper if a motor vehicle is operated in excess of:

1. 50 miles per hour on a divided highway outside of a thickly settled or business district for a distance of $\frac{1}{4}$ of a mile.
2. 40 miles per hour on an undivided highway outside of a thickly settled or business district for a distance of $\frac{1}{4}$ of a mile.
3. 30 miles per hour in a thickly settled or business district for a distance of $\frac{1}{8}$ of a mile.
4. 20 miles per hour in a legally established school zone.

Note the distance requirements associated with the enforcement of Chapter 90, Section 17. Instantaneous radar or laser readings are not adequate. The motor vehicle must be shown to have been in excess of these speed limits for the entire distance associated with each respective speed limit. Also, prima facie speed limits cannot be posted, with the exception of a legally established school zone.

The definition of a “thickly settled or business district” is as follows: “The territory contiguous to any way which is built up with structures devoted to business, or the territory contiguous to any way where dwelling houses are situated at such distances as will average less than two hundred feet between them for a distance of a quarter of a mile or over.”

Chapter 90, Section 18 authorizes the posting of numerical speed limits on all roadways in Massachusetts. The foundation for the actual posting of a speed limit is a

thorough traffic engineering study. After a study has been completed, a Special Speed Regulation is drafted and approved by the governing authority of the roadway, the Registry of Motor Vehicles and MassDOT. All posted regulatory speed limit signs must adhere to this approval process. If a speed limit is posted without this procedure, it is in violation of Chapter 90, Section 18, and is therefore considered illegal and unenforceable.

Chapter 90, Section 17 dictates the basic speed law, which is “No person operating a motor vehicle shall run it at a rate of speed greater than is reasonable and proper, having regard to traffic and the use of the way and the safety of the public.” Note “reasonable and proper”, for this is the fundamental speed law. No form of regulation, control, or restriction can supersede it. No matter what speed is posted, “reasonable and proper” is always the fundamental rule. On a highway posted 55 miles per hour, reasonable and proper may mean five miles per hour depending on conditions.

ENGINEERING STUDIES AND SPEED ZONING

A prerequisite to establishing speed regulations and posting speed limits is a comprehensive engineering study at each location where speed control is contemplated. The purpose of the study is to establish a speed limit that is safe, reasonable and self-enforcing. The most important step is measuring the prevailing speeds of motorists on a particular section of a roadway under ideal conditions. The speed at or below which 85 percent of the motorists travel is the principle value used for establishing speed control. This is commonly referred to as the **85th percentile speed**. This method is based on numerous studies which indicate that the majority of motorists are prudent and capable of selecting safe speeds. The 85th percentile speed is the national standard for establishing safe speed limits.

In Massachusetts, numerical limits are based on ideal conditions. More specifically, the posted speed limits represent the **maximum safe speed under ideal driving conditions**. It is the responsibility of each motorist to reduce his\her speed for unfavorable weather

conditions, for poor visibility, for heavy traffic volume, for substandard vehicle conditions, and for his\her own driving deficiencies. Posted speed limits also serve as an invaluable guide to enforcement officers as to what is a reasonable maximum speed for ideal conditions.

The determination of the proper speed to post on any roadway depends on the results obtained in the engineering study, which for the purpose of this manual can be separated into A) the collection of data, and B) the analysis of the data.

COLLECTION OF DATA

Investigations for this purpose should include:

- I. Preliminary Study of Conditions
- II. Speed Calculations of Curves
- III. Speed Observations
- IV. Studies of Accident Distribution
- V. Trial Runs over the Location

The municipality requesting the establishment of a speed limit on a particular city\town way is responsible for submitting to their respective MassDOT District Office all of the necessary information listed above, with the exception of II, since most municipalities do not possess the proper equipment to accomplish this. MassDOT is responsible for collecting the above data on all State Highway and numbered routes (non-state highway).

I. Preliminary Study of Conditions

Upon receipt of the necessary data from the municipality, a Speed Control Summary sheet should be prepared by MassDOT District Speed Zoning personnel for the roadway under consideration (see figure 1), showing all data on horizontal curves, hills, volumes is available, accident distributions, speeds by 85th percentile and by trial runs, and recommended speed zones. It is also desirable to include notes regarding other conditions contiguous to the area of interest such as intersecting streets/driveways, bridges, playgrounds, etc. or any other landmark that may help to provide an accurate description of

the area. All observations, tabulations or calculations are to be made separately for each of the two directions of the traffic and should be recorded on the Summary sheet. All zones are to be computed to the nearest tenth of a mile. With a few exceptions, zones ideally should be at least 0.5 miles in length.

However, exceptions to this guide do exist. For example, on an approach to a section of roadway where it is determined that it is necessary to reduce the speed limit due to an adverse or dangerous situation, a minimum zone length of 0.5 miles is not needed to adequately advise motorists of the proper operating speed through such a condition.

COMA OF MASS. TRAFFIC ENGINEERING SECTION MASSACHUSETTS HIGHWAY DEPARTMENT SHEET OF SHEETS

[illegible]

Figure 1

II. Speed Calculations on Curves

The Ball Bank Indicator is the simplest and most widely used device to measure safe, comfortable speeds on horizontal curves (see figure 2). The Ball Bank Indicator is a curved level that measures the combined effect of the body roll angle, the centrifugal force, and the superelevation angle as a vehicle negotiates a horizontal curve at various speeds.

Ball Bank Indicator



Figure 2

To obtain the driver's respect of the posted speed (regulatory or advisory). The following maximum ball bank angles are recommended:

<u>Speed</u>	<u>Ball Bank Reading</u>
20 mph	16 degrees
25 mph	14 degrees
30 mph	14 degrees
35 mph and up	12 degrees

It is desirable to have these speeds as close to 85th percentile values as possible.

However, with the increased performance of late model passenger cars (i.e. ABS brakes, improved power steering, better traction on tires, etc.), this is often not the case. With this in mind, it is the policy of MassDOT that we should assume the safest scenario and, therefore, the guide shown above shall always be used so that consistency is maintained throughout the Commonwealth.

Trial runs should be made with the ball bank indicator on all horizontal curves having a safe operating speed of 60 mph or less, in accordance with the procedure outlined in Section V.

III. Speed Observations

Spot speed checks are of prime importance since they represent the opinion of the drivers using the roadway as to what the safe speed is at a given location. This is the basic data on which all speed zones are based. The location of the speed check stations is singularly important because it determines whether or not a complete picture of the speeds in the area is being obtained. It would be ideal to have speed checks at an infinite number of locations so that the 85th percentile speed could be computed at all points. Since this is not practical, the speed check stations must be strategically located to show all the important changes to municipalities, speed check stations should generally be located at intervals not to exceed 0.25 miles, depending upon the locality and the uniformity of physical and traffic conditions. Much closer spacing than this may be necessary to obtain an accurate picture of the speed pattern. In rural areas, the spacing of speed check stations may be at much greater intervals provided they properly reflect the general speed pattern. There should be at least one observation for each directions of travel in each zone of a different numerical limit.

Trial runs (see Section V) through the area may be of help in locating the appropriate speed check stations. After the locations of the speed check stations have been determined and the speed checks made, the 85th percentile speeds should be calculated immediately in the field. By doing so, it is possible to get an idea of what the speed pattern will look like and to determine if more speed check stations or an unusually high or low 85th percentile speed at a particular point, additional speed checks should be made, and possibly additional speed check stations added, to clarify the speed picture.

Speed checks should be made on a weekday at off-peak hours and under ideal weather conditions. The speeds of 100 or more vehicles in each direction should be checked at each station. On highways carrying low traffic volumes, the checks at any one station may be discontinued after two hours although a minimum of 100 vehicles have not been timed. Vehicles should be checked as quickly as possible, but it is not necessary to check the speed of every vehicle. The vehicles checked, insofar as possible, should be the ones in which the driver is choosing his/her own speed. When a platoon of vehicles closely spaced passes a speed check station, only the speed of the first vehicle should be recorded since the other drivers may not be selecting their own speeds. Vehicles involved in short passing or turning maneuvers should not be recorded since they are usually traveling at an abnormal rate of speed. Speeds of vehicles other than passenger cars, such as trucks and buses, shall be recorded as: T, B, S, etc. (see Speed Distribution Sheet, Fig 3)

Speeds are measured by a radar gun or laser gun. Both instruments are extremely accurate and provide the engineer with invaluable data when used properly. Caution should be taken that the manufacturer's instructions are followed stringently in order to insure that collected data is correct and accurate for speed zoning purposes. In most cases, speed data collection is typically conducted in a passenger car or light truck. It is important that the aforementioned vehicles are **unmarked** so that motorists do not perceive the recorder's presence as an enforcement activity and adjust their speeds accordingly.

HCD2308 REV 1/06

Massachusetts Department of Transportation

SPEED DISTRIBUTION

Location MAHAR STREET
 Direction of Travel EASTBOUND
 Date 10/15/06

Town WYOMING
 Station ATLANTIC STREET
 Time 12:15 pm To 1:45 pm

Interval
 Total

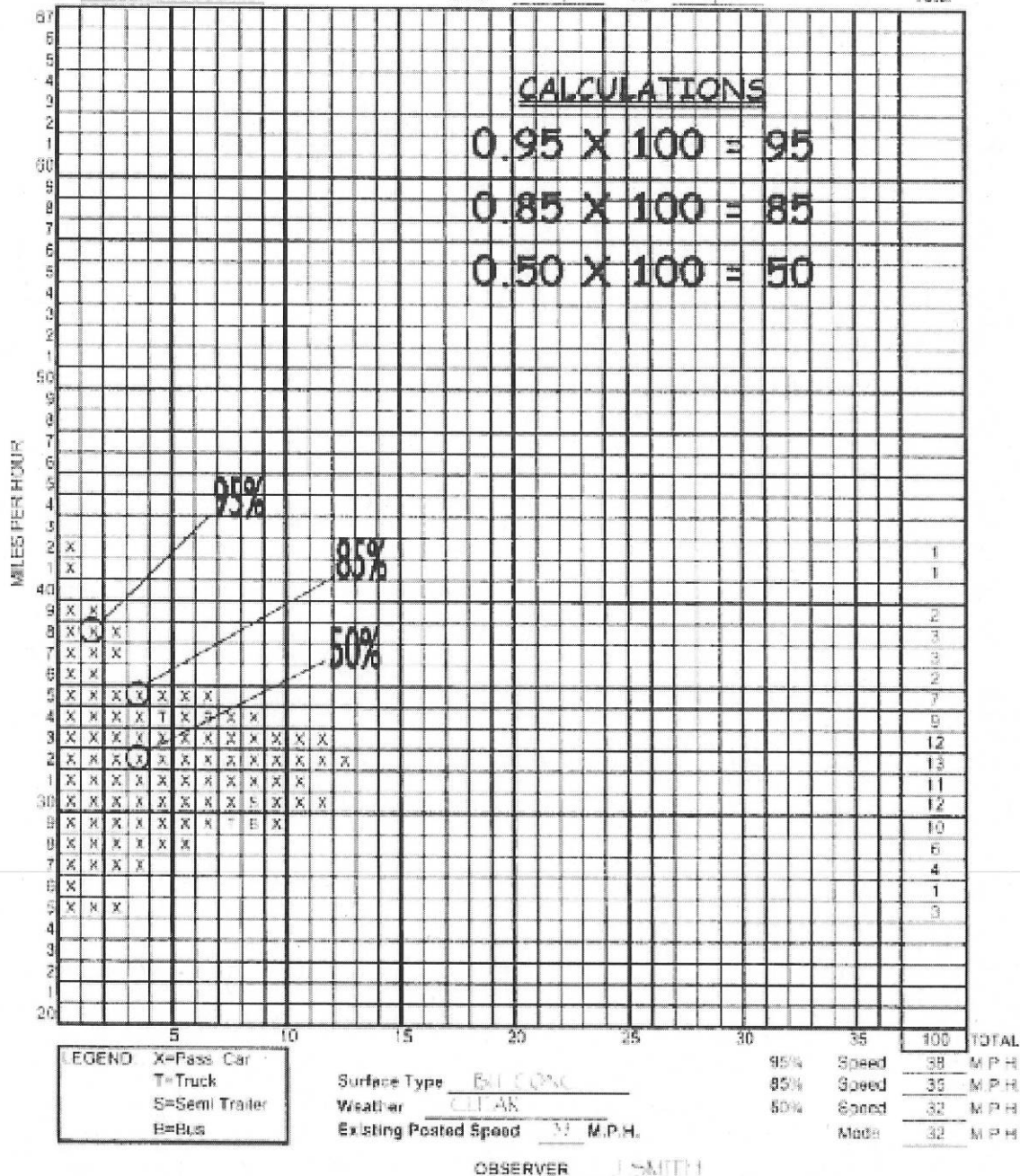


Figure 3

Also, the recording vehicle should be parked in such a way that it does not affect the speed of vehicles using the roadway, preferably being positioned off the traveled way out of plain view.

The **85th percentile** speed of vehicles passing a given point is the speed at or below which 85 percent of the vehicles passing the point are traveling. This is the principle value used for establishing speed controls. This method assumes that the majority of motorists are prudent and capable of selecting safe speeds; therefore, speeds established in this manner meet the legal requirement that they be “reasonable and proper.”

Calculating the 85th percentile speed from the data collected on the Speed Distribution Sheet (fig. 3) is simply a matter of determining what 85% of the total number of vehicles recorded is. For example, if 100 vehicles are recorded, 85 percent of 100 equals: $(0.85 \times 100 = 85)$. One could also determine the 85th percentile speed by taking the highest 15 percent of the vehicles recorded and eliminating them from consideration (counting down from the highest speeds, right to left) : and the next tally mark on the sheet represents the 85th percentile speed is circled on the Speed Distribution Sheet along with the 95th and 50th percentile speeds. The Mode is simply the speed at which the largest number of vehicles is traveling and is also recorded (fig. 3). Any other information regarding the conditions present during the time of the recording should also be included. The speed check information should then be recorded on the Speed Control Summary Sheet (fig. 1).

In some unique cases, the 85th percentile speeds will differ considerably by direction at a particular location. In such cases, the zone speeds should conform to the 85th percentile speed even though this means zoning for different speeds in opposite directions. Such a condition may be caused by relatively heavy development on one side of the road. Within the proximity of the development, motorists will tend to be more prudent due to the increased possibility of conflict caused by traffic into and out of the development.. Conditions which might justify varying from the 85th percentile speed are:

- a. If the 85th percentile speeds for adjacent speed check stations are

approximately the same, they may be statistically averaged to determine one speed zone. No 85th percentile speed should be included in such averages, however, if it varies more than 7 miles per hour from the speed derived from the average. Posted limits are rounded off to the nearest 5 mile per hour increment.

b. On sections of highways having a high accident experience, the zone speed may be lower than the 85th percentile speed, but in no case more than 7 miles per hour lower. This should be considered more as an exception than the rule, and should be done only where enforcement agencies will ensure consistent enforcement which will increase the effectiveness of the zone to an acceptable level of conformance.

c. At locations where traffic volumes are low and one hundred cars cannot be recorded in the two hours that the speed check station is operated, the 85th percentile speed may not be reliable. In many cases such as this, speed zoning will probably not be required. However, if conditions such as roadside development and high accident experience indicate that speeds lower than the prima facie limits are required, it would be beneficial to make a number of trial runs through the area. From the data obtained from the trial runs and from the speed check data, it should be possible to arrive at a reasonable and proper speed zone. Posted limits are rounded off to the nearest 5 mile per hour increment.

For each speed observation location, the following information should be recorded on the Speed Distribution sheet:

1. 95th percentile speed
2. 85th percentile speed
3. 50th percentile speed
4. Mode (the speed at which the greatest number of vehicle are traveling)
5. Pace (the ten mph. speed range containing the greatest number of vehicles).

IV. Studies of Accident Distribution

Indicate on the strip map, the locations of all accidents reported during the previous two years. Use distinctive marks to represent fatal, personal injury and property damage accidents.

V. Trial Runs Over the Location

Trial runs should be made over the entire roadway by engineers, enforcement officers and municipal officials using at least three different drivers. An observer seated directly behind the driver should take and record readings of the speedometer and odometer for every tenth of a mile. (see Trial Run sheet, fig.4) The drivers should operate at the safe maximum comfortable speed. The actual speed is observed for each point and plotted on the Trial Run Sheet. (Note: Use a different color pencil for each driver.) The high and low speeds are discounted and the remaining speeds are averaged, thereby developing a speed curve. The speeds at each tenth of a mile are then recorded on the Speed Control Summary Sheet. (fig. 1)

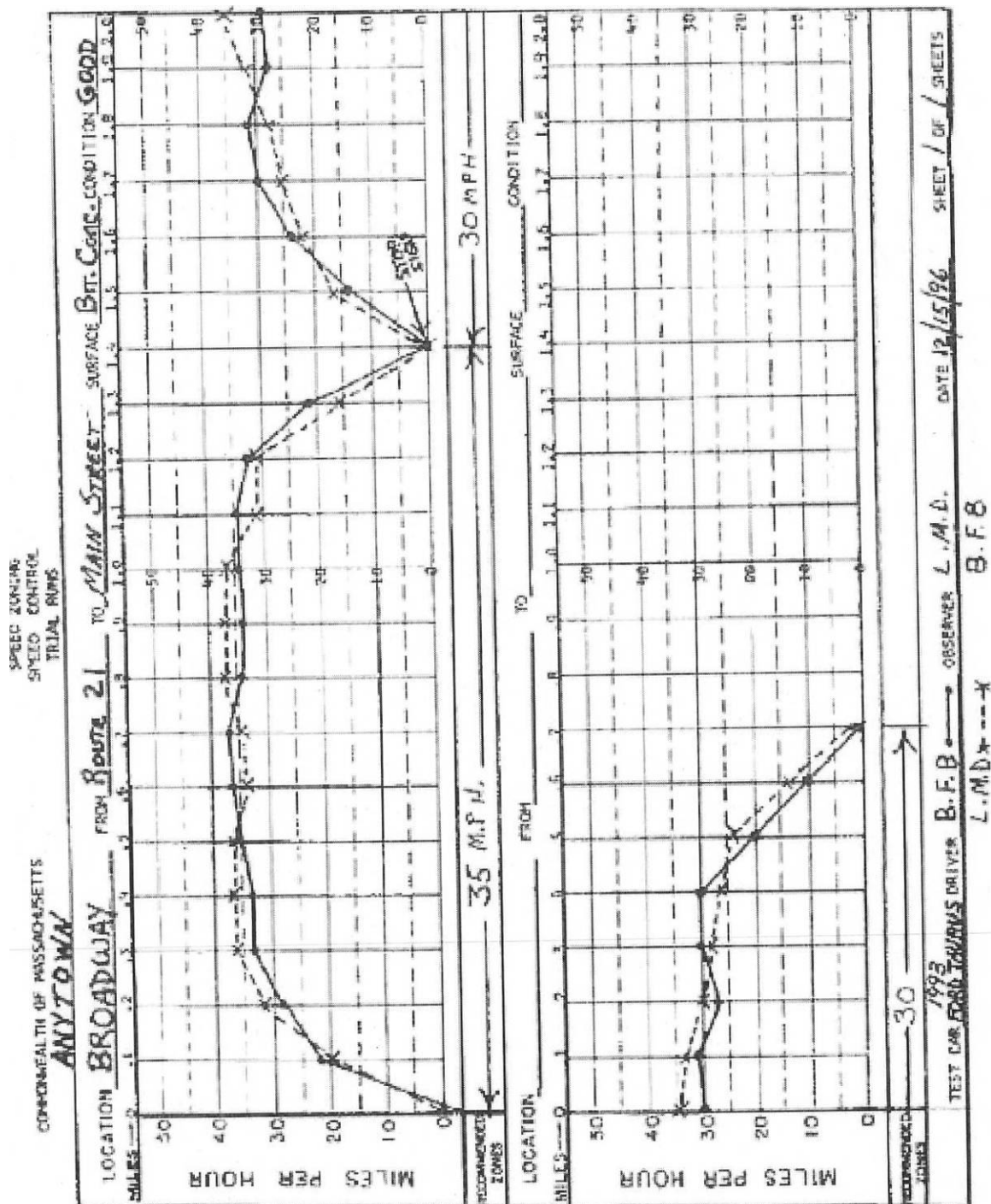


Figure 4

ANALYSIS OF DATA

The requirements for analyzing the collected data are as follows:

- I. Safe Speed Range
- II. Selecting Speed Limits and Lengths of Each Zone
- III. Advisory Speeds
- IV. Rechecks with Trial Runs

I. SAFE SPEED RANGE

The safe speed range for each location is determined after the data collected for the location is analyzed. The following criteria are used to determine safe speed values for each location:

- a. The proposed speed limit for any location should not be higher than the critical approach speed for that location, which in part is determined by horizontal and vertical safe sight distance. Also, for the purpose of establishing speed limits, the critical approach speed can be considered equal to the 95th percentile speed in the absence of geometric restrictions.
- b. At speed observation locations, the estimated safe speed shall not be more than 7 m.p.h. below the 85th percentile speed, and it should not be higher than the 95th percentile speed. The relative position within this range will depend on several other considerations, as outlined in c, below.
- c. Consideration should be given to the following in selecting a value for the estimated speed within the previously mentioned range for each speed observation location:
 1. Accident Rating - When the accident rate for a section is much higher than the average for other highways of similar classification, the estimated maximum safe speed should approach the lower limit of this speed range. When the accident rating is average or below, the estimated safe speed should be closer to the upper limit of the speed range.
 2. Probable value of the speed limit – When the speed limit is likely to be 40 m.p.h. or above, the value of the estimated speed limit should generally approach the upper limit of the speed range.
 3. Physical Conditions - When the strip map on the Speed Control Summary Sheet reveals narrow shoulders and lack of sufficient space for maneuvering in

the event of emergency, or any other conditions or traffic impediments present that may require additional caution on the part of motorists using the roadway, it may be desirable to use slightly lower values to provide some additional margin of safety (such as the presence of schools, elderly housing, etc.). However, the proposed speed limit should never be lower than the lower limit of the safe speed range.

II. SELECTING SPEED LIMITS AND LENGTHS OF EACH ZONE

Each speed zone should be as long as possible, while always taking into consideration the speed limitations at curves, hills and intersections. (see Section III., below) In rural areas, the length of a zone generally should be at least one-half mile when possible. Each zone in a series of graduated speed zones should be at least two tenths of a mile in length, and, if the speed limit is reduced from one zone to the next by 15 mph or greater, a W3-5, "REDUCED SPEED LIMIT AHEAD" sign shall be erected in advance of the lower limit in order to inform motorists to adjust their speeds accordingly.

The point where the highway enters or leaves a residential district should be used, when feasible, as points of change in numerical limits for a graduated speed zone. This encourages uniformity and provides a reason to the motorist as to why the speed limit has increased or decreased at a particular point.

The value of the speed limit for each zone should generally be equal to or slightly less than the average of the values of the safe speeds for speed observation locations within the zone

III. ADVISORY SPEEDS

Special consideration should always be given to the safe speeds for curves, hills and other locations located within that portion of the section. If the safe speed determined by a Ball- Bank Indicator through a particular curved section of a roadway differs from the preceding speed zone by 10 miles per hour or less, and the curved section of roadway is less than 0.20 miles, or if engineering judgment determines that it is appropriate, a warning sign used in conjunction with an advisory speed plate indicating the safe speed can be used in lieu of establishing a separate speed zone for an isolated condition.

Section 2C-08 of the 2009 Manual on Uniform Traffic Control Devices (M.U.T.C.D.) states:

Section 2C.08 Advisory Speed Plaque (W13-1P)

Option:

01 The Advisory Speed (W13-1P) plaque (see [Figure 2C-1](#)) may be used to supplement any warning sign to indicate the advisory speed for a condition.

Standard:

02 **The use of the Advisory Speed plaque for horizontal curves shall be in accordance with the information shown in [Table 2C-5](#). The Advisory Speed plaque shall also be used where an engineering study indicates a need to advise road users of the advisory speed for other roadway conditions.**

03 **If used, the Advisory Speed plaque shall carry the message XX MPH. The speed displayed shall be a multiple of 5 mph.**

04 **Except in emergencies or when the condition is temporary, an Advisory Speed plaque shall not be installed until the advisory speed has been determined by an engineering study.**

05 **The Advisory Speed plaque shall only be used to supplement a warning sign and shall not be installed as a separate sign installation.**

06 **The advisory speed shall be determined by an engineering study that follows established engineering practices.**

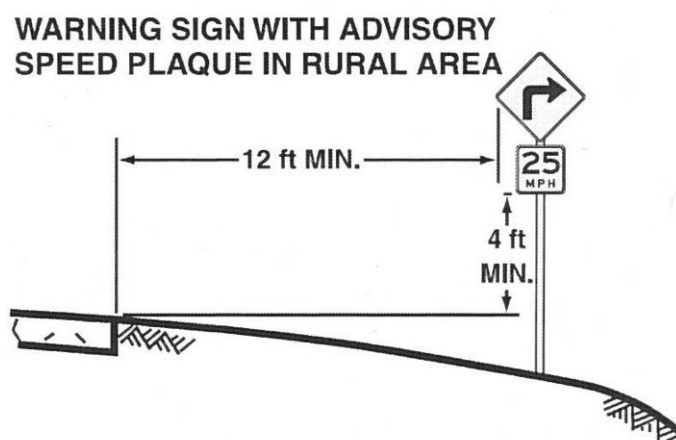
Unlike regulatory speed signs, advisory speed signs can be erected by municipalities without any further approval provided they comply with the M.U.T.C.D. Also, advisory

speeds are not enforceable, since their intent is to advise motorists of an appropriate speed through a particular condition, not regulate it.

IV. RECHECKS WITH TRIAL RUNS

After the proposed speed limits and zone lengths have been determined, repeat the trial speed runs, driving in each direction over each part of the zone at the recommended speed for that direction. Make notes on whether the limits and the lengths of the separate zones appear to be satisfactory. Note also the readings of the Ball-bank indicator when negotiating horizontal curves. If some revision in the zone appears to be necessary, make the required adjustments and recheck with test runs accordingly.

After all of the necessary field data has been collected and analyzed, it should be forwarded to the appropriate MassDOT District Office so that the results of the study can be discussed. A tentative agreement should be reached as to what speed limits will be established. This must be a tentative agreement because the speed zones must be reviewed by both the MassDOT District Traffic Engineering Section and the Boston Office Speed Zoning Section for final approval.



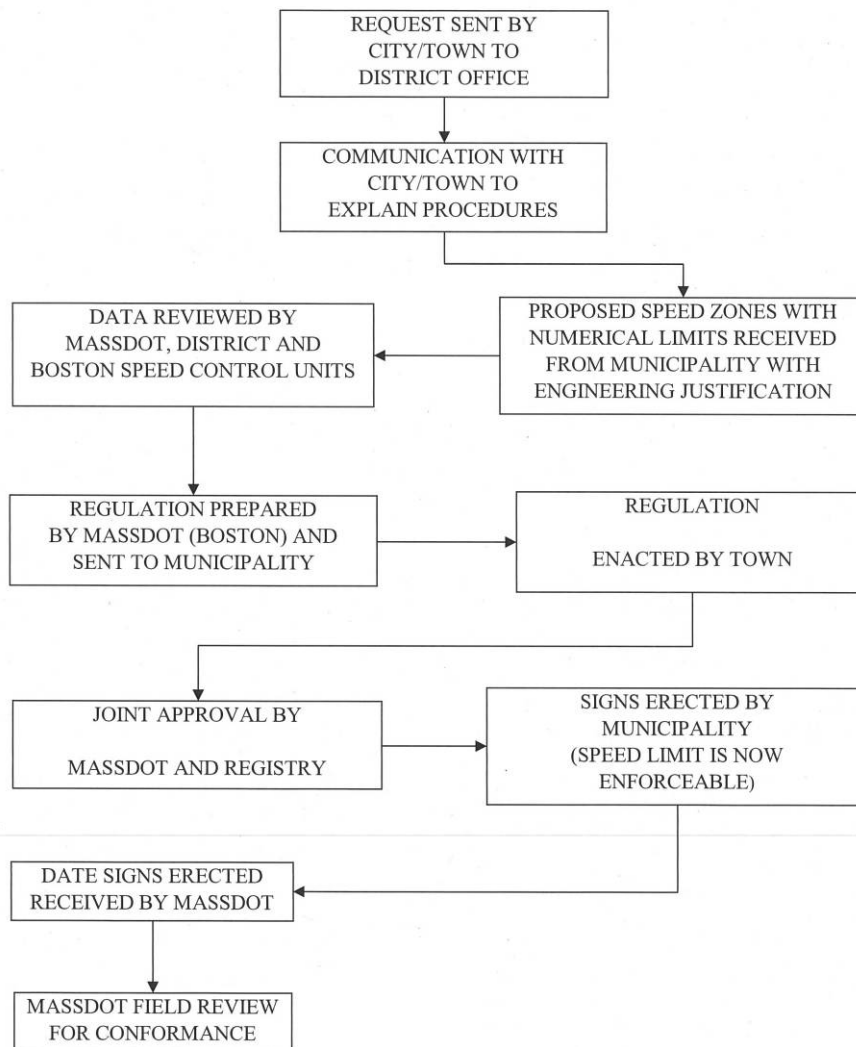
SPECIAL SPEED REGULATIONS

Following the determination of the appropriate speed zones and the subsequent approval by the Boston Office, a Special Speed Regulation will be drafted by the Boston Office

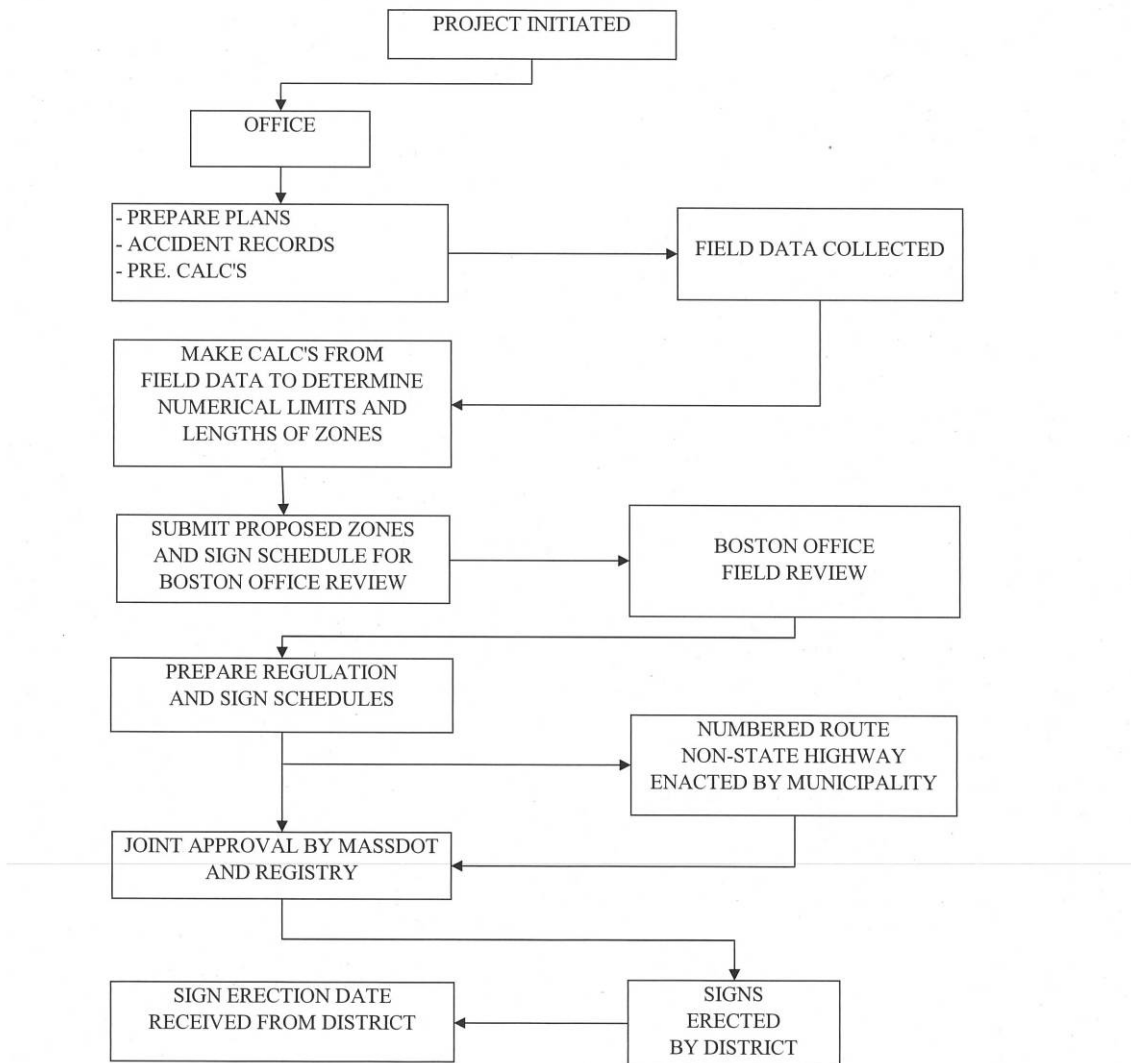
Speed Zoning Section to be signed by the Chief Deputy Registrar for the Registry of Motor Vehicles and the State Traffic Engineer for MassDOT. In the case of a City or Town regulation, the Special Speed Regulation must first be adopted by the appropriate City or Town officials before being approved by Registry and MassDOT officials. (see Speed Control Flow Charts, fig. 6a & 6b). After the regulation is adopted by all of the previously mentioned agencies, the authority in control of the subject roadway may then proceed with the erection of the appropriate speed limit signs at which point the regulation then becomes legal and enforceable.

SPEED LIMIT PROCEDURE ON MUNICIPAL ROADWAYS

TOWN REGULATIONS



SPEED LIMIT PROCEDURE ON STATE HIGHWAYS AND NUMBERED ROUTES



SPEED LIMIT SIGNS

Speed Limit signs are rectangular in shape, with black numerals on a white reflectorized background. (see fig. 7).

Typical sizes of standard signs and numerals are as follows		
	Numerals	Signs
Town or state Highway*	12"	24" x 30"
Limited Access Highway	16"	48 " x 60"
Interstate	16"	48 " x 60"
<ul style="list-style-type: none"> a 36" x 48" sign with 14" numerals can also be used. (NOTE: The regulation does not become effective until all of the appropriate signs are actually erected.) 		

A sign must be placed at each location where a change in the numerical limit occurs. In unusually long zones, confirmatory speed signs should also be erected at strategic locations to remind the driver of the legal speed limit. On Interstates and Limited Access Expressways, confirmatory signs are usually erected at all points of access.

FOLLOW UP STUDIES

After the speed signs have been in place for sometime, it is often beneficial to conduct a follow-up study to determine the zone's effectiveness and to evaluate any changes in speed patterns. The comparison of the speed observations made before and after the zoning should be recorded. Consideration should be given to revising numerical limits which vary by 7 m.p.h. from the 85th percentile speed.



R2-1

After the zones have been in effect for a year or more, it is often beneficial to make a comparison of the accident experience for one year before and after the establishment of the zone. This accident experience should be compared and summarized on before and after summary tables. Such a comparison will show whether the zone has been effective in reducing the number and severity of accidents and will also show the types of accidents which have been affected by the speed limit signing.

EFFECT OF SPEED ZONES

Studies have shown that speed zoning has very little permanent effect on average vehicular speeds. There are indications, however, that it does have a tendency to group more of the drivers within the Pace since some of the slower drivers speed up and some of the faster drivers slow down after the speed limits are posted.

In some cases, it has been noted that speed zoning has had a marked effect in lowering the accident rate. The principal benefit of properly established speed zoning is to provide a means for police officers to apply enforcement to those who do not conform to speeds considered reasonable and proper by the majority of the motoring public. Public opinion will be on the side of the police who are enforcing a reasonable maximum speed. The former federally mandated 55 mile per hour national speed limit on the Interstate System clearly shows that an unreasonably low speed limit is neither enforceable nor has the long term support of the general public.

CONCLUSION

Successful speed zoning is a cooperative project which includes the traffic engineer, the enforcement agencies and the judiciary. It requires careful engineering, conformance to recognized standards, state-wide uniformity, and development of public understanding and support. Under this approach, speed zoning is a valuable aid to the conscientious motorist and to enforcement officials.

APPENDIX

Chapter 90: Section 17 Speed Limits

No person operating a motor vehicle on any way shall run it at a rate of speed greater than is reasonable and proper, having regard to traffic and the use of the way and the safety of the public. Unless a way is otherwise posted in accordance with the provisions of section eighteen, it shall be prima facie evidence of a rate of speed greater than is reasonable and proper as aforesaid (1) if a motor vehicle is operated on a divided highway outside a thickly settled or business district at a rate of speed exceeding fifty miles per hour for a distance of a quarter of a mile, or (2) on any other way outside a thickly settled or business district at a rate of speed exceeding forty miles per hour for a distance of a quarter of a mile, or (3) inside a thickly settled or business district at a rate of speed exceeding thirty miles per hour for a distance of one-eighth of a mile, or (4) within a school zone which may be established by a city or town as provided in section two of chapter eighty-five at a rate of speed exceeding twenty miles per hour. Operation of a motor vehicle at a speed in excess of fifteen miles per hour within one-tenth of a mile of a vehicle used in hawking or peddling merchandise and which displays flashing amber lights shall likewise be prima facie evidence of a rate of speed greater than is reasonable and proper. If a speed limit has been duly established upon any way, in accordance with the provisions of said section, operation of a motor vehicle at a rate of speed in excess of such limit shall be prima facie evidence that such speed is greater than is reasonable and proper; but, notwithstanding such establishment of a speed limit, every person operating a motor vehicle shall decrease the speed of the same when a special hazard exists with respect to pedestrians or other traffic, or by reason of weather or highway conditions. Any person in violation of this section, while operating a motor vehicle through the parameters of a marked construction zone or construction area, at a speed which exceeds the posted limit, or at a speed that is greater than is reasonable and proper, shall be subject to a fine of 2 times the amount currently in effect for the violation issued. Except on a limited access highway, no person shall operate a school bus at a rate of speed exceeding forty miles per hour, while actually engaged in carrying school children. Amended by St.1932, c.271, c.716; St.1964, c.176; St.1964, c.185; St.1965, c.474; St.1972, c.463; St.1974, c.49; St.1974, c.851, & 7; St.1975, c.173, & 1; St.1975, c.329, & 1; St.1975, c.494, & 7; St.1978, c.171; St.1986, c.689, & 7;

Chapter 90: Section 18
Special regulations, speed and use of vehicles

The city council, the transportation commission of the city of Boston, the board of selectmen, park commissioners, a traffic commission or traffic director, or the department, on ways within their control, may make special regulations as to the speed of motor vehicles and may prohibit the use of such vehicles altogether on such ways; provided, however, that except in the case of a speed regulation no such special regulation shall be effective unless it shall have been published in one or more newspapers, if there be any, published in the town in which the way is situated, otherwise in one or more newspapers published in the county in which the town is situated; nor until after the department, and in the case of a speed regulation the department and the registrar, acting jointly, shall have certified in writing that such regulation is consistent with the public interests; provided, however, that nothing herein contained shall be construed as affecting the right of the metropolitan district commission or of the department of environmental management to make rules and regulations governing the use and operation of motor vehicles on lands, roadways and parkways under its care and control. No such rule or regulation shall prohibit the use of passenger or station wagon type motor vehicles whose gross weight is less than five thousand pounds and which are registered for commercial use on ways where noncommercial passenger type motor vehicles are permitted to operate. No such regulation shall be effective until there shall have been erected, upon the ways affected thereby and at such points as the department and the registrar, acting jointly, may designate, signs, conforming to standards adopted by the department, setting forth the speed or other restrictions established by the regulation, and then only during the time such signs are in place. Any sign, purporting to establish a speed limit, which has not been erected in accordance with the foregoing provisions may be removed by or under the direction of the department.

Any person, corporation, firm or trust owning a private parking area or owning land on or abutting a private way, or any person, corporation, firm or trust controlling such land or parking area, with the written consent of the owner, may apply in writing to the city council, the traffic commission of a city or town having a traffic commission, the transportation commission of the city of Boston or the board of selectmen in any town in which the private way or parking area lies, to make special regulations as to the speed of motor vehicles and as to the use of such vehicles upon the particular private way or parking area, and the city council with the approval of the mayor, the traffic commission of a city or town, the transportation commission of the city of Boston or the board of selectmen, as the case may be, may make such special regulations with respect to said private way or parking area to the same extent as to ways within their control and such special regulations shall not be subject to approval by the department or the registrar; provided, however, that any traffic signs, signals, markings or devices used to implement such special regulations shall conform in size, shape and color to

the most current manual on uniform traffic control devices. Amended by St. 1945, c125; St.1948, c.564, & 2; 18, 19; St.1968, c.222; St.1968, c,694 & 3; St.1969, c. 76; St.1970, c342, & 2; St.1975, c706, & 119; St.1984, c.84; St.1986, c.608, & 18; St.1986, c689 & 9;

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Massachusetts Department of Public Works

SPEED DISTRIBUTION

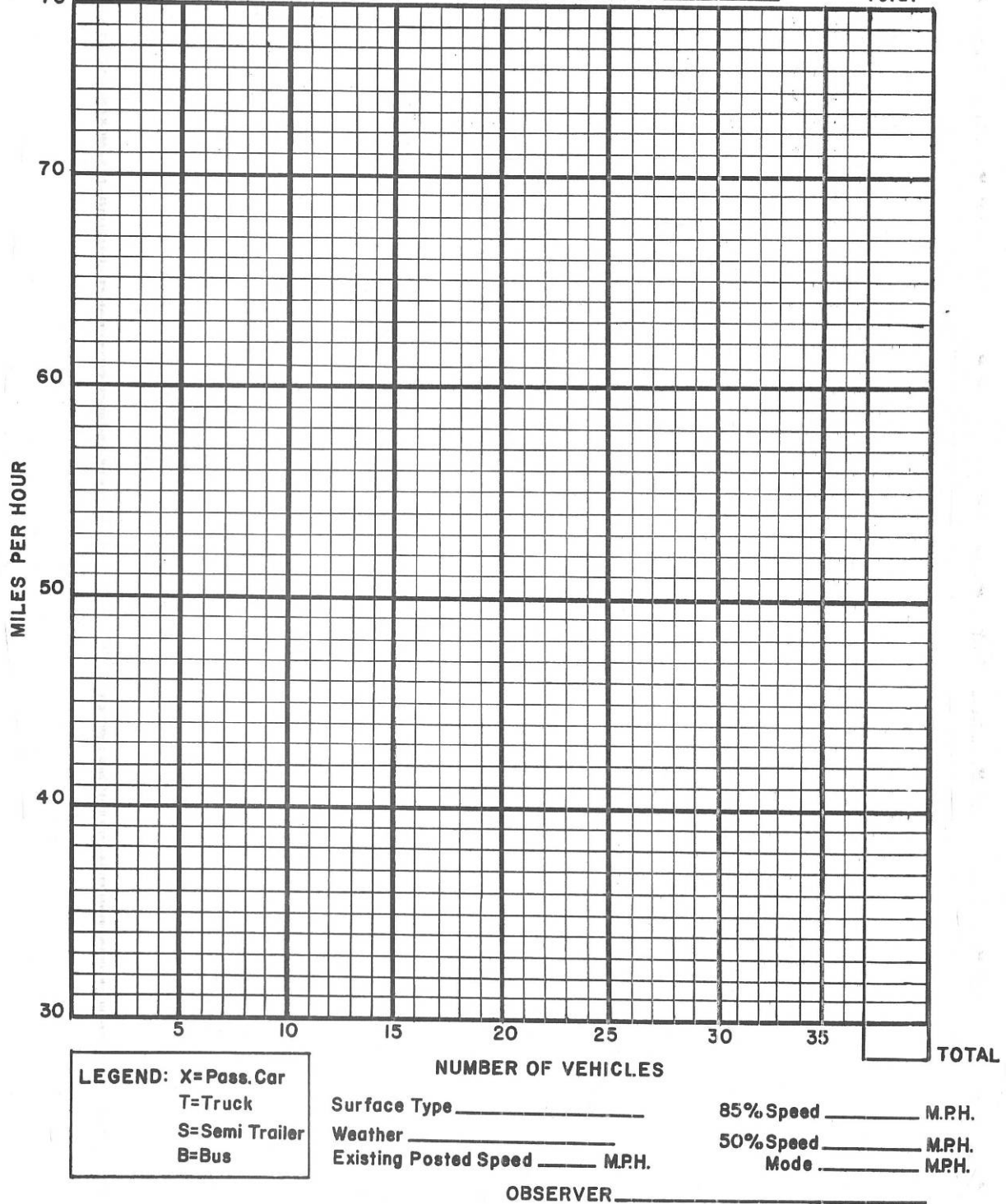
Location: Route _____ Town _____

Direction of Travel _____ Station _____

Date _____ Time _____ To _____

Interval

Total



COMMONWEALTH OF MASSACHUSETTS										SPEED ZONING SPEED CONTROL TRIAL RUNS												
LOCATION		FROM		TO		SURFACE				CONDITION												
MILES	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	
50											50											50
40											40											40
30											30											30
20											20											20
10											10											10
0											0											0
RECOMMENDED ZONES																						

LOCATION		FROM		TO		SURFACE				CONDITION												
MILES	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	
50											50											50
40											40											40
30											30											30
20											20											20
10											10											10
0											0											0
RECOMMENDED ZONES																						

TEST CAR	DRIVER	OBSERVER	DATE	SHEET	OF	SHEETS
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HED-740

Comm. of Mass.

TRAFFIC ENGINEERING DIVISION

Dept. Public Works

District _____

Sheet _____ of _____ Sheets

TRIAL RUN RECORD

Route No. _____ From _____ To _____

St. Hy. --Town Way _____ Time _____ Mileage _____

Driver _____ Recorder _____ Test Car _____ Date _____

HED-789